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A MANUAL

OF THE DISEASES OF

THE HUMAN EYE,

&c. &c.

VOL. I.

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A

MANUAL

OF

THE DISEASES OF

THE HUMAN EYE,

INTENDED FOR

SURGEONS COMMENCING PRACTICE,

FROM

The Best National and Foreign Works,

AND, IN PARTICULAR, THOSE OF

PROFESSOR BEER:

With the Observations of the Editor,

DR. CHARLES H. WELLER.

BERLIN, 1819.

Translated from the Original German Work, and Illustrated with Cases and Observations,

BY GEORGE C. MONTEATH, M. D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF LONDON, MEMBER OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, AND ONE OF THE SENIOR SURGEONS OF THE GLASGOW ROYAL INFIRMARY, &c. &c.

ILLUSTRATED WITH PLATES.

IN TWO VOLUMES.

VOL. I.

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1821.

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TO

MATHEW BAILLIE,

M. D. F. R. S.

PHYSICIAN EXTRAORDINARY TO HIS MAJESTY, &c. &c.

Dear Sir,

Having had the good fortune to enter on the discharge of my Professional duties under the favour of your recommendations, it has ever been my ambition, as well since resigning the appointment which your kindness had obtained for me, as during the years I held it, to justify, in some degree, the opinion for which I was thus early indebted to you. With pleasure

therefore, I avail myself of your kind permission, to inscribe to you the following Work on the Morbid States of the Eye, as a first humble contribution to a particular department of that Professional Science which, in the judgment of all, you have not less highly adorned by personal merit, than cultivated by the zealous and successful exertion of pre-eminent talents.

I have the honour to be,

With the greatest respect,

Your most obedient and very

Humble Servant,

GEO. C. MONTEATH.

TRANSLATOR'S PREFACE.

THE title-page prefixed to this Manual might, perhaps with propriety, supersede any further explanation of the Translator's motives for presenting it in an English dress, to those of his professional brethren who may not have extended their acquaintance with foreign writers beyond the medical schools, eminent as they confessedly are, of France and Italy. If however any thing further be expected on his part, in compliance with a custom not without its use, he has merely to state what follows.

During a course of seven years' practice in a city whose ascertained population is upwards of 145,000, and among numerous cases from the large towns and villages connected with this commercial metropolis of North Britain, he has had a very extensive field of observation in treating the diseases of the eye; a branch of medical science to which his attention was turned very early in life, and which he has cultivated with all possible assiduity. Among the very great number of applicants afflicted with eye complaints during that period, amounting in a single year (1820) to 1288, it may be presumed that a variety of cases occurred from time to time, which, with their treatment, might be submitted to the students of a science which can be improved only by patient induction and analysis.

Accordingly, so early as 1816, he began to collect a variety of cases, and had seven plates

representing a number of diseased eyes, engraved, with a view to early publication, by an artist of great eminence, Mr. Lizars of Edinburgh. Events, then very recent, had again restored that unrestrained intercourse with the Continent, which had been almost totally suspended for a considerable time. Free access was thus opened to those treasures of scientific and experimental knowledge, which the Oculists of Germany had been so industriously accumulating. A perusal of the works of Schmidt, Langenbeck, Himly, &c., and above all, of the celebrated Professor Beer of Vienna, convinced him that it would be an acceptable service to the profession, to present them with the following valuable Synopsis by Dr. Weller of Berlin, of the Ophthalmology of his distinguished countrymen.

With this view, he resolved to attempt the humble office now accomplished, with what

success, he pretends not to anticipate. The work he had meditated, and which was so far in progress, he has, without relinquishing it altogether, laid aside for the present, in the hopes that it may be so matured by future researches, observation and experience, as to be less unworthy of the public eye.

In the treatise now submitted, in its present form, to the candid judgment of his brethren, he is not sanguine enough to think that inaccuracies have not escaped him, though he would hope these are few, and such as will not detract from the usefulness of the work. He is aware of the difficulty of avoiding an air of stiffness in exhibiting a foreign writer in the English language, especially from a language of which a very high authority has pronounced, even regarding works of a lighter kind, " Ce sont les pensées memes, et non l'éclat qu'on leur donne qu'il faut admirer." ALLEMAGNE, par Mad. de Staël. To break

down long and intricate periods, to new-model those that appear hard and uncouth even in their native dress, and by varied, though equivalent, forms of speech, to accommodate the whole to the genius of our own language —though suitable to works of fancy or less important disquisition, he has cautiously admitted in a work requiring precision in form and expression.—The Translator however has, in a few instances, substituted modern for obsolete pharmaceutical names; he has also omitted the index at the end of the original work, which he conceived of little use, considering the great minuteness of the table of contents.

Cases and observations are occasionally subjoined in the form of foot-notes. These might have been considerably extended, but it seemed doubtful if it were compatible with the author's design of exhibiting a condensed view of what is most important in the principles and rules for practice.

The work in its present state is indebted to Mr. Swan, engraver, of this city, for a superior set of plates, as he not only brought to the undertaking superior talents, but copied all the figures from the works of the different authors by whom they were originally published,—rather than as they appear in Dr. Weller's publication.

15, GEORGE-SQUARE,
Febraary, 1821.

PREFACE.

THE wish manifested on all hands to possess an abridged practical Manual of the Diseases of the Eyes, in which, along with the more important experience and discoveries of the most esteemed modern Surgeons, both of our own and foreign countries, the doctrines of the renowned Professor Beer of Vienna, my honoured Teacher, might be made public; but still more the hope of advancing that most important branch of the Healing Art among young Surgeons, as well as among those who

have the disadvantage of living at a distance from the fountains of knowledge, have determined me to publish the following work.

With this view, I have perused the best works I could procure, as well of this country as of others, and have particularly selected whatever manifold experience had sanctioned; nevertheless, the newest works almost alone will be cited, because, on the one hand, I presumed the more ancient works were already made known in previous manuals of the diseases of the eyes; and on the other, their citation would have occupied too much room. On the latter account I have often, even when possible, avoided bringing forward several methods of operating for one disease, as in general, an extended consideration of abilities and judgment in operations, might be less wished for than other matters of pure oculistic knowledge. In like manner, most of the

ancient methods of cure, &c., which must yield to the better curative measures of modern times, have not been described.

Still, however, I have endeavoured to treat minutely of those forms of disease which had been hitherto less generally known, such for example as the Fungus Hæmatodes Retinæ, the conical projection of the Cornea, &c.

When I have especially availed myself of the experience of Professor Beer; in particular when I have frequently selected the most important practical matter from his "Lehre von den Augenkrankheiten, Wien. 1813 and 1817," and even in many parts, modified short extracts from it, and made his voluminous work as it were the basis for the present Manual, I conceive that I have thereby met the wishes of many Surgeons, and enhanced the utility of the book.

I have brought forward whatever my own experience has taught me worthy of remark.

Many objections may be made to the Anatomical arrangement in which the diseases have been here brought forward, yet I could in fact find no other, which was not equally or more objectionable, and even rested often on far more slender recommendations, than that here adopted.

The paintings in the subjoined plates of the chief diseases of the eye capable of being represented, I have in part accurately copied from original drawings which correctly represent nature; in part, however, they have been carefully painted by myself, from the living subject.

I conceived it necessary to subjoin the instruments which the last plate represents, for the clearer elucidation of the described operations.

The accompanying Index will be very useful to the hasty consulter.

Whilst I commit the book to medical men, I shall willingly allot to myself particular merit, and feel rewarded, if my hope of being useful by the extension of Ophthalmological knowledge, shall not prove a dream.

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INTRODUCTION.

Before proceeding to the description of the particular diseases of the eyes, it is necessary to premise a few words explanatory of the differences which exist, particularly between pure and specific inflammations of the eyes.

We observe in, and on, the organ of vision, so many, and so widely different states of inflammation, that it is not always easy to distinguish each of them sufficiently, and to apply a suitable treatment: on which account a clear and practical division of them must be of considerable use, and prevent, in the best possible man-

ner, a confusion of diseases differing essentially from each other.

In order to fulfil this as far as possible, I must describe *pure* inflammation of the eye, and then, in reference to this, *specific* inflammation, the one of which must be well distinguished from the other, in order to render its treatment rational.

By a pure inflammation I mean that which never has a specific disease for its foundation, in which rather the inflammation runs on, in its natural way, showing neither in the first, nor in the second stage, any specific or unusual symptom, and accordingly, in so far as concerns other circumstances which may afterwards occur, the *quantity* of inflammation only requires to be considered. The manner in which this natural form of inflammation appears, is known to every Surgeon. Yet this very inflammation shows several distinctions, and, as

might be expected, displays various pathological modifications, for we sometimes observe symptoms caused by the individual structure and function of the tissue inflamed; sometimes the pure inflammation is modified by the constitution, age, or sex of the patient; sometimes by the remote causes, &c. Distinctions are especially observed in almost all the particular species of inflammation of the eye, afterwards to be more minutely discussed, depending on the peculiarities of the inflamed structure, and which, for the most part, require attentive consideration during their cure. —For example, the symptoms which characterize pure inflammation of the Meibomian glands are very different from those which announce an inflamed cornea, iris, retina, &c.; for the first disease manifests itself in the second stage, whether slight or severe, by an unnaturally increased secretion of mucus: inflamma-

tion of the cornea again, when not very severe, by the affected membrane being changed to a whitish colour: inflammation of the iris by its changing, when naturally brown, into a reddish colour, &c. In all such cases of pure inflammation, the general treatment is the same, but each variety requires peculiar attentions during the cure, depending on the structure and function of the tissue affected.

In like manner, as already mentioned, the constitution and age of the patient are of much consequence in the symptoms and treatment; for pure ophthalmiæ are met with in weakly or in old people, where the inflammation is never predominant, but rather deficient in quantity, consequently, the first stage passes over very quickly, or even cannot be discovered, by the Surgeon, *Asthenic Inflammation.* In such cases, the symptoms commonly

belonging to the second stage of inflammation, may appear without any signs of inflammation having previously existed, or being now present, which can only be owing to an unusual relaxation of the diseased parts.*

---

* If the relaxation, in such a case, exist in the eyelids, particularly in the Meibomian glands, and the former be also found adhering together in the morning; if hard and soft particles of matter secreted from these glands, be observed, particularly at the internal canthus, even during the day, unless the eyes be continually cleaned; if the patient has never experienced pain, redness, itching, or excoriations; in such cases, sometimes occurring in old people, I have used with much advantage the Spir. Corn. Cerv., at first diluted with one-half of Aqua Opii, afterwards pure. It is to be well rubbed upon the eyelids once every day.

The Aqua Opii is nothing else than Water distilled from pure Opium; from a pound of Opium, four pounds, or somewhat more of the water, may be prepared. The apothecary may easily procure it during the preparation of the common Extract. Opii, when he conducts the evaporation of the watery solution of Opium in the usual manner,

Although, even in Asthenic Inflammation, a first stage may be often met with, in which inflammation is observed to be more or less predominant, yet it must not in general be treated in the usual antiphlogistic manner, since it runs its course very rapidly, and leaves behind a more tedious second stage, often becoming habitual, and not unfrequently very destructive to the eye; it must therefore be carefully treated, both locally and constitutionally, by suitable diet and medicines.

But pure inflammation will not follow a similar course in every old and weakly person; it may rather, in a case of general debility, run

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in a water-bath, using, however, a small retort, with a well luted recipient. This water, particularly when some days old, smells very strong of opium; it must be preserved in a cellar, in a glass-stopper bottle, otherwise the smell diminishes in a very short time, and ultimately is entirely lost; on which account, it should be prepared in small quantity.

a very severe and acute course, which then depends especially on the remote cause, and the present particularly excited state of the powers of the eye.

When real inflammation, in a case of ophthalmia, no longer predominates, but the asthenic stage has already begun, Opium with wine, applied locally, is particularly and highly useful, and is, on that account, recommended in a particular manner by the most celebrated oculists. Such are the cases, also, in which the external applications may be used lukewarm with advantage. If the inflammation be of a more torpid nature, the applications must be more irritating and penetrating.

Pure inflammation is to be well distinguished from *Idiopathic*; for although the latter be in general pure, yet in every case it cannot be called so, for the irritation, which operated as a remote cause upon the eye, may readily at the

same time serve as a lure for a specific disease, existing in the body; hence it happens that sand, &c. falling into the eye of a scrofulous child, may immediately change the idiopathic inflammation, thereby excited, into a scrofulous ophthalmia. Even when only a disposition to scrofulous disease is present, it sometimes happens, that our opinion of the disease existing in the eye is formed from the previous irritation of the remote cause. *

Sometimes *pure* ophthalmiæ proceed from another disease existing in the body, and are then, at the same time, *sympathetic*. For example, very severe pure ophthalmiæ may arise from suppressed customary fluxes of blood;

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* I am not sure that I have been able to comprehend exactly what the Author means to express in the last sentence of this paragraph. The first part of the paragraph, however, points out a circumstance of vast practical importance. *Translator.*

they commonly occur very suddenly, are from the commencement accompanied with fever, and usually run their course very quickly and severely.—Also, in inflammatory fevers, inflammation may extend to the eye, and induce an ophthalmia, which, as in the former case, runs its course with rapidity and severity, and must be generally treated in the same way as the inflammatory fever.

Pure inflammation can affect every structure of the eye, can show itself, accordingly, in all the forms to be mentioned, and actually does so frequently; it will be treated of according as the sclerotica, cornea, or retina, &c. may be the point of origin, under the names Sclerotitis, Keratitis, &c. Even during the extension of the inflammation beyond these parts, it is usual to retain these names till a certain period, which will be more minutely determined during the treatment of the individual forms of inflammation.

When pure inflammation terminates in suppuration, it diminishes in point of intensity, yet always continues so powerful as sufficiently to produce the suppuration, and through its means to restore the parts destroyed. If, however, the inflammation has been so much reduced, either by too active antiphlogistic treatment in the first stage, or its too long continuance, that it cannot produce a kindly suppuration, or if it has occurred in a very weakly subject, or be asthenic, then an ichorous suppuration takes place, and the affected part becomes subject, in some degree, to the chemical laws of inanimate nature, as happens completely in sphacelus.

Specific inflammation has always for its foundation a specific cause, consisting in a peculiar quality of the living powers, and which has already in general changed the whole constitution of the body. From each specific cause, in each particular kind of inflammation, specific symp-

toms arise which belong to it alone, and by which it is customary to distinguish this from every other kind of inflammation. Specific, is different from pure inflammation in its nature, and requires a method of cure which must not only be conducted according to the degree of inflammation, the peculiarities of the tissue immediately affected, and the strong or weak state of constitution, but in a particular manner, according to the *causa specifica.*

In specific ophthalmia, the really inflammatory has, as it were, become amalgamated with the specific state, which latter directly establishes the kind of inflammation. If the inflammatory state predominate, and the living power, besides being changed in quality, be also unnaturally excited in the eye; if also a first stage has been observed, then the inflammation will be always characterized by more severe symptoms than

in opposite circumstances. In such a case the predominating inflammation must not always be subdued by antiphlogistic treatment, because the first stage will soon pass over without it. If, at the same time, a greater or less degree of general debility be present, as is the case, for example, in scorbutic, gouty, or scrofulous ophthalmia; if the first stage run its course so quickly, that the Surgeon does not observe it, then, by antiphlogistic treatment, the constitutional disease would be directly increased, and the local inflammatory reaction in the eye, would be rendered more tedious and obstinate.

Moreover, most specific inflammations of the eye have this peculiarity, that they particularly prefer this or that part, this or that membrane, &c. of the eye, and accordingly usually make choice of the same tissue for their seat. Specific, like pure inflammations of the eye, get their

names of iritis, &c. according as they have commenced from the iris, or some other part.

So far in regard to pure and specific ophthalmia in general. The more minute detail of the different kinds of each of these general classes of inflammations, will be more amply considered in the proper place.

In regard to the rules of caution belonging to the Oculist, all is applicable, and should be known to him, that is known to Surgeons in general; let him accordingly be guarded in giving too certain, or unconditional, a prognosis, and consider well, in every occurring case of disease, what he can do, and what he may promise. In operations however in particular, let him think well before-hand, whether the sight yet remain in some degree in the eye to be operated upon, and whether it may not be probably completely destroyed by the operation; whether the eye has perfectly recovered

from the inflammatory disease which probably existed previously; whether in general, any thing, and how much or little may be gained, by the proposed operation. At the same time, the peculiar constitution of the patient and of the eye * must never be omitted in his cal-

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* Many eyes appear to be exceedingly irritable, and to have inflammatory action excited by every mechanical injury of their texture, even when the cutaneous system is not very sensible to injury, and when no symptom denoting unsoundness is present, and in such cases, it is soon perceived how rapidly the inflammation destroys the organ of vision. Other eyes again, which have suffered very severe wounds, for example of the iris, seem scarcely affected by them, so that in the subsequent iritis, every severe symptom, mentioned under pure iritis, shall be wanting. How much the iris is capable of bearing, I saw lately in a young man with blue eyes, in whom the pupil had become closed in consequence of a syphilitic iritis. A quack operator, from want of other instruments, pierced the eye and cut up the iris eighteen times in a short period with a lancet-shaped cataract needle, expecting thus to establish

culation, which, alas! is not always done; and not unfrequently lays the foundation for the failure of the operation.

---

an artificial pupil, in which he succeeded, though very imperfectly, at the eighteenth attempt.

A MANUAL

OF THE DISEASES OF

THE HUMAN EYE,

&c. &c.

OF

PURE OPHTHALMIA

IN GENERAL.

INFLAMMATION of the eyes has a first and a second stage. * The latter of which, however, is not always present; the inflammation may rather cease with the first stage, without leaving behind any thing more than a somewhat morbidly excited sensibility of the organ of vision.

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* What Richter and others call Acute and Chronic; what some physicians call Active and Passive; what Scarpa, in his "Trattato delle principali malattie degli Occhi, edizione quinta, 1816," vol. i. p. 180, with the Arabian physicians, calls Hot and Cold Ophthalmia, is comprehended under these two Stages.

Ophthalmia, like every other inflammation, is characterized by redness, heat, swelling and pain; yet sometimes one, sometimes the other of these symptoms is most prominent, and sometimes one or more are entirely wanting; this however generally depends on the seat of the inflammation, by which also it is variously modified.

Symptoms of the first stage.—With these general symptoms of inflammation, are observed a disposition constantly to close the eye and a flow of tears; which however in the acmé of severe degrees of inflammation entirely disappear, and leave in their place a troublesome dryness and immobility of the eyeball; with this is connected sometimes a greater, sometimes a less degree of aversion to light, which, in some severe degrees of the disease, ceases suddenly, in consequence of the supervention of palsy. If the inflammation reach a very high degree, it no longer continues local; the general system takes a share in the disease, and an inflammatory fever commences.

Symptoms of the second stage.—After the inflammation has arrived at its height, a state of remission commences in moderately severe Ophthalmiæ, so early as the fourth, fifth, or sixth day. The pain and heat of the eyes abate; the arterial redness of the first stage changes, and falls rather into a dirty blue, or a brownish red; sometimes effusions of blood are seen in different places; the patient commences to open his eye better; he bears more light, without as formerly, its increasing the lachrymation. Now recommence the secretions and excretions which were suppressed in the first stage, only much more copiously, and differently mixed, from what they are naturally. Sometimes the parts surrounding the eye become affected with œdematous swelling.

If the first stage was very severe, and neglected, or if the exciting cause produced a loss of substance, then suppuration readily commences; by which, nature endeavours to repair the parts probably to be lost; this reparation however, can only happen when the matter has

the well known properties of laudable pus. If it be ill smelled, thin, greenish, brownish, as it is often found in old, weak, cachectic people, it is called Ichor, and this is never favourable to the reproduction of the parts of the eye destroyed by inflammation; on the contrary it rather causes a greater loss of substance. Not unfrequently an actual suppurative fever now supervenes; which however, by no means attends every suppuration of the eye.

The causes which induce this disease are manifold. The following operate most frequently: an impure atmosphere, trichiasis, bodies falling into the eye, too bright light, or a quick change from darkness to light. Inflammations of the eyes in a particular manner, occur readily when the eyes are often and long exposed to the immediate reflection of light from very white objects. In like manner, all over-exertions of the eyes, wounds with sharp or blunt instruments, unnecessary or immoderate use of spectacles, and the improper use of many eye remedies, particularly of eye-salves,

which are often rancid, may be injurious. Also the kaleidoscope, lately come into fashion, and rubbing in tartar emetic ointment too near to the eyes, have not unfrequently been observed as causes of Pure Ophthalmia.

Congestion in the head, and particularly in the eyes, from pressure of the bowels by coughing, loud crying, too tightly applied neckcloths, and from passions, &c. belong also to the injurious causes operating, mediately however, upon the eye. So also suppressed fluxes of blood—*e. g.* hemorrhoidal, menstrual, and nasal—must not be forgotten as causes of Pure Ophthalmia. Even the irritation of cutting teeth in children, or of carious teeth, may produce a pure ophthalmia.

The prognosis of the first and second stage is very different, and depends, partly, on the intensity of the inflammation, on the particular part affected, and on the particular cause; as also, on the early or late call of surgical aid. Slight external idiopathic inflammations may often be resolved without bad conse-

quences. Inflammations of the eye-lids run a more tedious course in general than those of the eyes themselves. Inflammations of the internal structures of the eyes, much more readily leave behind them perfect or imperfect destruction of vision, than external superficial inflammations; which latter, on the other hand, more frequently indirectly limit or hinder vision by organic obstacles; for example, by leucoma, staphyloma, &c. Inflammations which attack the whole eyeball, which is often the case after deep wounds, proceed almost always to suppuration, or even to gangrene. Besides, the second stage may, by spontaneous accidental causes, readily revert into the first.

Treatment of the first stage.—The exciting causes must be removed. Foreign bodies which may have fallen into the eye, must be removed. Fine dust, when it has first entered the eye, will often be easily removed, by preventing the entrance of the tears into the lachrymal sac, by means of pressure of the finger, continued for some time, under the internal canthus. In this

way, the foreign bodies are often easily washed by the tears into the inner canthus, from which they can without difficulty be removed with the finger. If this does not succeed, let the foreign body be searched for, and wiped out of the eye by means of a probe; around one end of which, moistened charpie is to be applied, or with the rolled up corner of a pocket handkerchief,* or with a pencil. If several foreign bodies are supposed to be in the eye, it will be well to wash out the eye with water, or syringe it with the same fluid.†

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* Ware et Himly, des erstern, chirurg. Beobachtungen, über das Auge, Uebs. von Dr. Runde mit Aumerk. Vers. von Prof. Himly, B. i. S. 21.

† In the great majority of cases of this kind in which I have been consulted, if nothing is visible on the bulb, I immediately evert the upper eyelid, by laying hold of, and pulling gently its ciliæ, with the finger and thumb of the left hand; whilst with any blunt point, such as a pencil, a probe or a toothpick, a slight counterpressure is made on the skin of the eyelid, at the upper edge of the tarsal cartilage; which, it will be recollected, is nearly

If the foreign body has penetrated firmly into the conjunctiva of the palpebræ of the

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four lines broad at the middle part of the eyelid. These two opposing forces immediately produce an eversion of the eyelid, and the conjunctiva of the superior palpebra becomes exposed, and in very many cases, one black particle of dust will be observed upon it, and can be readily removed. This little operation will be more easily executed, by making the patient sit down on a low stool, the surgeon standing behind him. Another very simple method of examining whether a foreign body lies under the upper eyelid, is to make the patient sit down upon a chair, and recline his head over its back. The surgeon lays hold of the upper eyelid by the ciliæ, and pulls the eyelid so much as to put it gently on the stretch, whilst at the same time he raises it from the eye-ball, directing the patient to look down. This will enable the surgeon to see under it, and examine almost the whole conjunctiva of the upper eyelid. Should it be necessary to search for particles that cannot be seen, the hair-pencil should be smeared over with some mucilaginous fluid, or with fresh butter, which will more readily entangle them. See *Lehre von den Augenkrank, peiten von G. Joseph Beer*, p. 135, Wien. 1813.

Foreign bodies of considerable size may lodge within the eyelids for many weeks, without inducing very violent symptoms. A young girl was brought to me on ac-

sclerotica or of the cornea, it may be easily removed by a fine spatula. But if hard pointed

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count of a soft red fungus growing out of the eye, and as large as a filbert nut. It was of some weeks' standing, and was attributed to a hurt inflicted by a straw striking the eye. With the assistance of my friend Mr. George M'Leod, surgeon here, I cut away this fungus, which originated in the conjunctiva where it is reflected from the lower eyelid to the eyeball, and I conceived that I had done it effectually. The girl however was in three weeks brought back again, with the fungus as large as ever. I again removed it, and at the point of reflection of the conjunctiva I discovered and extracted a portion of straw, fully half an inch in length. The cure was complete in a few days. The conjunctiva has a great tendency to produce such fungi when long irritated by a foreign body. I have since seen several such cases.

A patient from Argyllshire consulted me in the summer of 1818 for a tender inflamed state of his eye, induced by a fall five months before among some bushes, in descending a steep mountain. He felt some part of his eye wounded at the moment, and never enjoyed freedom from a tender state of the eye from that period, though he had applied a great variety of medicines. On everting the upper eyelid, I discovered very high up, viz. at the angle of reflection of the conjunctiva, a fungous state of this membrane, and on examining it freely with the probe I

particles have penetrated the internal surface of the eyelid, the cornea, or other parts, they must be carefully extracted by means of a lancet-shaped needle (Fig. 3.), or by a lancet, or by the fine forceps (Fig. 1.) If the foreign bodies have wounded the conjunctiva, and be in part covered by it, so that they cannot be extracted by means of the forceps, it will then be best carefully to elevate the wounded conjunctiva by means of a fine forceps, and to cut a portion of it out, around the foreign bodies, by which they are not only removed, but the lacerated wound of the conjunctiva will be converted into a clean incised wound. In rare

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discovered a foreign body lodged there. I laid hold of it and extracted it with the forceps, and it proved to be a portion of a twig of a bush, three quarters of an inch in length, and nearly as thick as a crow quill, and which had remained in the eye ever since his fall. I need not add that his eye was immediately restored to a healthy state. It is remarkable that so large a body could have got into the situation where it was found, without wounding the ball of the eye. *Translator.*

cases, it sometimes happens that foreign bodies become almost incorporated with the cornea, nature having formed a kind of sac around them. *

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* James Wardrop, *Essays on the Morbid Anatomy of the Human Eye*, p. 68. Ph. Fr. Walther found sacculated foreign bodies in the external angle of the eye. See his *Abhandlungen aus dem Gebiete der Pract. Medicin.* 1810, I. bd. S. 403.

A clergyman from Argyllshire applied to me in the summer of 1818 for the removal of a foreign body from the cornea. Several weeks before, when walking in the fields, he felt the sudden entrance of this body. Several attempts had been made to remove it. On applying to me, a small black substance was observed indented in the cornea, which was nearly obscured and overlapped by a network of little blood-vessels, the sources of which from the edge of the cornea could hardly be perceived. The foreign body was very easily turned from its nearly completed sac by means of Scarpa's needle, and proved to be one half of the firm hull of a small seed, convex on one side, concave on the other, by means of which concavity it fixed itself into the cornea. The uneasiness produced by this foreign body had been but trifling; it is therefore probable that a complete sac would have been formed in a very short time.

During the endeavours to remove the irritating body from the eye, a severe spasm of

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Foreign bodies may penetrate the cornea, and either drop into or adhere to some part forming the anterior chamber.

In the year 1815 Mr. Shanks, of Johnston, brought to me his son of nine years of age, on account of the following accident. The preceding day, whilst attempting to divide a penny piece with a hammer and chisel, a splinter flew from it with such violence as to penetrate the cornea and become fixed in the iris, where it was distinctly seen shining. The anterior chamber was plump, and the wound which the metal had made in passing through the cornea could be seen with difficulty. Inflammation had already commenced. With the assistance of my partner, Dr. James Monteath, a small incision was made in the cornea, as near as possible to its margin, and the foreign body extracted with a pair of fine forceps. It measured $1\frac{1}{2}$ line in length, and one line in breadth. No inflammation followed, and the young gentleman left me on the fourth day after the operation with perfect vision. The pupil remained a little angular, in consequence of the laceration of the iris. Had this substance been allowed to remain, there can be little doubt that iritis would have supervened, followed by one or more of its destructive consequences, viz. obliterated pupil, synechia, staphyloma, or suppuration of the eyeball.

the orbicularis palpebrarum frequently happens, particularly when the eye is irritated, both mechanically and chemically at the same time. Should this happen, let the patient be taken to a dark room and left quiet, and apply a moderately warm poultice formed of crumb of bread boiled in water or milk, with some Laudan. liquid. Sydenh. If the spasmodic closure of the eyelids have continued long and severe before the surgeon has been called, add to the

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Another boy was brought to me on account of a wound of the eye, received on leaping through a thorn hedge. On examining the eye, the point of a thorn prickle two lines in length was seen lying in the anterior chamber, which was plump, and the wound of the cornea inflicted by the thorn was healed, but opaque. The point of the thorn was sticking slightly in the iris—its blunt end hung down to the bottom of the anterior chamber. The prickle was removed as in the former case, and with the same happy result. The escape of the lens in these two cases from wound and concussion, was singularly fortunate, either of which causes would have produced cataract. *Translator.*

poultices some Fol. Hyosciami; only beware that the poultice never becomes cold upon the eye, otherwise the spasm will not be removed, but rather increased and prolonged.

A cooling poultice of a drachm of the Tinctura Stramonii c. Aq. Distill. ℥iii has also been recommended for this spasmodic shutting; in such cases the spasm must have arisen rather from nervous than from inflammatory irritation.

Hot ashes, unslaked lime, powdered caustic, and mortar, must be carefully extracted from the eye by means of a pencil moistened with fresh butter or pure oil, and the three last mentioned substances in particular must not be attempted to be removed with water, because the lime thereby slaking, and the caustic spreading farther, would produce much more injury.

Crab-lice, which sometimes nestle in the conjunctiva of the eyeball, may be perfectly removed by streaking the parts affected with a salve prepared with Ung. Hydr. ciner. and some

Ol. Spicæ. A few hours after, when they are dead, they may be wiped away with a pencil dipped in grease.

Wounds of the eye and of its appendages, must be treated according to the rules given under the diseases of the particular textures. When all such external causes have been removed as much as possible, then the greater or less degree of inflammation of the eye, determines a more or less active anti-phlogistic treatment.

If the inflammation be very severe in degree and extent, if inflammatory fever arising from it be present, then general blood-letting, repeated when necessary, is urgently indicated; and here when we have to do respecting the existence of a most precious organ, it is even advisable to perform the bleeding in the temporal artery or the external jugular vein, and to a sufficient extent. In less severe inflammation of the eyes without fever, or when it appears to arise from the irritation of an external cause, and recedes as soon as this is removed,

leeches are sufficient, which, from three to ten or more in number must be applied on the temple, or under the internal canthus, and around the whole eye, only, avoid placing them too near to the eyelid, since afterwards considerable swelling and effusions of blood in the eyelids are often observed, which may increase the inflammation by their irritation. Bleeding also from the vena angularis, from eight to twelve ounces, is here very suitable, and even in very severe ophthalmia often produces very rapid alleviation of the symptoms.

When the conjunctiva palpebrarum et scleroticæ is affected and swollen, scarifications of it are of great use. However, this will be more particularly treated of under the inflammation of these parts.

If the ophthalmia arose from congestion produced by suppressed menstruation,* hæmorr-

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* Ophthalmia from such causes not unfrequently occurs periodically. Reil, Walther, and many others, saw women who got ophthalmia at every menstruation. See *Memora-*

hoidal or nasal hæmorrhage; then the extraction of blood will be best performed at the place in which the disease originated; hence leeches are applied on the labia pudendi, around the anus, or on the alæ of the nose.

An ophthalmia sometimes shows itself in infants as a consequence of difficult teething: in such a case, the gum over the advancing tooth should be divided by two incisions crossing each other. Certain benefit is not often to be expected from this. Leeches applied on

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bilia Clinica Medico Practica, vol. i. Fascic. 1. p. 53. Walther, a. a. O. S. 395.

In a troublesome case of ophthalmia from this cause, which I treated for several months, I observed that the blood-vessels had a peculiar lake colour, and that there was always found on the inner surface of the eyelid a quantity of a whitish looking substance resembling wet hair-powder. This substance was formed by some part of the secreting apparatus of the eye. The inflammation resisted every kind of treatment till the cause, the suppression of menstruation, was discovered. The menses were readily recalled by the Ol. Sabinæ exhibited in pills, when the ophthalmia disappeared as if by a charm. *Translator.*

the gum of the suspected tooth have even been recommended.

Along with the general and local bleeding, we must not neglect an anti-phlogistic diet, anti-phlogistic mixtures of nitre, lukewarm pediluvia, clysters, and rest of the eye by enjoining darkness of the patient's chamber, and the use of a green shade.

Fomentations of cold water, applied by means of linen compresses from four to eight ply thick, diminish the great heat and pain, and aid the cure considerably.

Sometimes a pure ophthalmia is combined with an œdema of the upper eyelid, in consequence of which a proper examination of the eye is rendered impossible; in this case two punctures with a lancet may be carefully made in the skin of the eyelid near to its edge, on which, after a bloody water has flowed out, the swelling decreases, and the necessary means may be better applied. *

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* James Ware.

Mild, pure ophthalmiæ often require no detraction of blood, for after the remote cause has been removed, we may use cold water or poultices of oxycrat,* or mucilaginous mild eye-waters,† by which they, for the most part, disappear in a few days.

When the inflammation has been partly subdued by the above-mentioned means, most oculists recommend poulticing the eyes with different emollients, for example, with loaf bread and milk, boiled with some saffron, or Flor. Verbasc. c. Croco orient., or the Capita Papaverum, and so forth. However, we must well consider that there are many persons so irritable, that their inflamed eyes cannot bear the slightest pressure, and in whom, therefore, in place of these poultices, we may use with

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* A mixture of vinegar and water.

† As the following, recommended by Reil:

℞. Muc. Sem. psyll.
—— Cydonior. a. ʒi.
Aq. Rosar. ℥ii. M.

great advantage emollient, anodyne, and moderately warm fomentations. Such poultices and fomentations may be repeated often daily, as every two or three hours.

As these poultices are very useful when preceded by sufficient bloodletting, so in like manner are blisters, which, however, when the phlogosis in the eye is as yet great, or when it is very irritable, must not be applied too near to the eye, *e. g.* on the temple, &c., because the blister in this case would not always act as a derivative or counter-irritant, but would rather increase the irritable state of the eye; on which account, apply the blister according as the sensibility of the eye is greater or less, either at a greater distance, for example on the arm or neck, or on nearer parts, as behind the ear.

Treatment of the second stage.—After the first stage has passed over, and a local debility of the vessels of the eye has commenced, the emollient poultices must on no account be continued, but recourse had to other remedies to be mentioned immediately.

Here the Tinctura Thebaica* is one of the most preferable medicines. It is used locally

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* Ware and Scarpa recommend that which is prepared according to the London Pharmacopæia of the year 1746. The formula is as follows:

℞. Opii Colati ℥i.
Cinnamonii.
Caryophyllar. Arom. a. ℥ss.
Vin. Alb. Hispan. lbss.

Macera per hebdomadam sine calore, deinde per chartam cola. That this preparation may not so readily spoil, a twentieth or twenty-fourth part of spirit of wine may be added to it.

As it is by no means a matter of indifference which kind of tincture of opium is used locally in ophthalmia, and as the above-named celebrated oculists have found this preparation decidedly useful,† it were much to be wished that this tincture were found in every apothecary's shop.

† Ware, and many others, found the Tinct. Opii Simp. hurtful or useless in these cases, when the Tinct. Thebaica was beneficial; and Scarpa says in another place, p. 200, of the Laudanum liquidum, "those who substitute liquid laudanum to the foresaid tincture, are very much deceived!!"

The Laudanum liquidum Sydenham, so often mentioned in this work, is the same preparation as that formed by the recipe given above, with the addition of half an ounce of saffron. *Translator.*

by allowing a drop of it to fall between the eyelids, once or twice daily. It increases at first the pain and lachrymation of the eyes, and augments the number of blood-vessels when they can be seen, but these effects are soon followed by decided relief. In severe inflammations of the eyes, when as yet no evacuations of blood have been premised, this medicine proves injurious, and increases the inflammation.

Astringent applications can now for the first time be applied, when a sufficient anti-phlogistic treatment has been used, and a local debility of the vessels of the eye has commenced. They may consist either of eye-waters or salves.

If the inflammation become chronic, a decoction of willow bark, with or without some drops of Laud. liquid. Syd. is often of real service.

The inflammations of this stage often yield to the use of an eye-water composed of Plumb. Acet. Aqua Distill. seu Rosarum, with some

drops of Spt. Camphor., or to the use of the Aqua Ophthalmica Conradi.* In like manner solutions of sulphat of zinc and alum are frequently used.

Astringents in the form of salves are also used in pure inflammations, particularly, however, when the inflammation has become very chronic.

All these remedies will be more particularly considered under the particular forms of inflammation.

During the use of these medicines, restore the eye to its hitherto unnecessary, but formerly customary influences, according to its existing state of sensibility; expose the eye therefore to the operation of free, dry, warm air, and if the inflammation advances to suppuration, let the eye have as much light as it can pleasantly bear, and let it be employed with

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* ℞. Mercur. Sub. Corr. gr. i.
Laudan. liquid. Sydenh. ʒiii.
Aq. Rosarum ℥vi. M. solvendo.

the observation of agreeable objects, and so forth. This will contribute much to a healthy suppuration.

If the suppuration extend, or if a bad ichorous suppuration take place, then it becomes highly necessary to assist by art the powers of restoration, so as either as soon as possible to bring about a healthy suppuration, or to limit it when too great. This is accomplished by the local application of tonic medicines, particularly volatile ones, suited to the debility of the eye, and by gradually giving up their use as soon as the unfavourable is changed into a favourable suppuration.

Use also dry warmth when necessary, with the addition of camphor, also bags of aromatic, dried herbs with camphor, warm poultices of crumb of bread and aromatic herbs, and of pulp of apples. Moist poultices, however, must never be allowed to become cold upon the eye.

If small ulcers exist upon the eyeball itself, the dropping into the eye and the bathing it

with a lukewarm solution of the Lap. Divinus, with the addition of some Laudan. liquid. Sydenh. is very efficacious. If a bad ichorous suppuration threaten to destroy the surrounding parts, some Acet. Plumbi is to be added to the solution. If the suppuration extend notwithstanding, the suppurating spots are to be smeared over once or twice daily, according to the degree of danger, with the Laud. liquid. Sydenh. In the most urgent cases the Laud. liquid. may be mixed with some Balsam. Vit. Hoffm., vitriolic æther, or Peruvian balsam in small proportions, only these means must not be used to excess, otherwise fleshy excrescences form, which when actually present must be destroyed by caustic or burnt alum. All other changes of structure arising in the first stage, are never to be treated with escharotics so long as the suppuration continues, and those abscesses only which lie too deep to allow a hope of their opening of themselves, may in this stage be opened with a lancet at their most depending part.

If a suppurative fever attend the suppuration, a nourishing diet is to be prescribed, with volatile stimulating medicines, *e. g.* Calamus Aromaticus, Camphor, Æther, &c. Let bark be given, and produce a derivation of the diseased tendency from the eye, by means of rubefacients applied at a little distance from it.

OF

THE DISEASES

OF THOSE PARTS WHICH SURROUND THE EYEBALL.

A.—OF THE DISEASES OF THE EXTERNAL COVERINGS OF THE EYES.

OF PURE INFLAMMATION OF THE EYELIDS.

Classification.—Inflammation of the eyelids is differently classified, according as all the parts of the eyelid are inflamed at the same time, or only particular parts of it; for, if all the textures which belong to the eyelid are attacked at the same time, it is then treated of under the appellation of General Pure Inflammation of the Eyelid, Blepharophthalmitis; if again the superficial parts only of the eyelid

are affected, it is called Blepharophthalmitis Erysipelatosa; or if the superficial parts only which lie over the lachrymal sac be inflamed, it is called Anchylops Erysipilatosa. If however the palpebral glands be the principally affected parts, then the inflammation will be considered under the name of Blepharophthalmitis Glandulosa, under which is included very properly the Ophthalmia Neonatorum; and lastly, if only a small part of the eyelid elevates itself into an inflammatory swelling, this circumscribed inflammation is called Furunculus Inflammatorius, or Hordeolum.

General Pure Inflammation of the Eyelids. Blepharophthalmitis.

There takes place at the edges of the eyelid a deep red, tense, very painful and hot swelling, which is extremely sensible to every touch, and which gradually extends over the whole eyelid, but becomes evidently bounded at the

edge of the orbit. The patient and even the surgeon feels a pulsation in the eyelid. The eyeball and nose become remarkably dry, and the eyelid can only be moved with the painful sensation as if foreign sharp-pointed bodies lay under it; the patient has also a feeling of dust in the nose, which is often so strong, that he must sneeze frequently, which is always accompanied with a considerable increase of pain and an extension of it into the eye and head, and is also attended with sensations of light in the eye, *Photopsia.*

An inflammatory fever often accompanies these symptoms, in which case the disease has reached its acmé.

By degrees the redness of the swelling increases, and becomes brownish or bluish red. The swelling enlarges, assumes a conical shape, and becomes softer and less painful. The pain becomes irregular, lancinating, burning, and is now only pulsating in the deep parts. The powers of secretion and excretion, which were at first suspended, are again restored, when

a sense of coldness and weight is felt in the region of the eye. The point of the swelling becomes pale red, yellowish, and soft, and matter is distinctly to be felt.

As a cause of this general inflammation of the eyelids, Professor Beer has hitherto only observed slight wounds.

The PROGNOSIS in the first stage is favourable, when it is properly treated at the very commencement; the inflammation will disappear, the use of the eyelid will return, and it will never go the length of suppuration. But if the inflammation be ill treated, and fever supervene, then gangrene or suppuration readily takes place. If gangrene have already commenced, then the patient may be thankful if he loses only the external parts of the eyelid, in consequence of which an Ectropium or Lagophthalmus remains permanently. If a healthy suppuration take place, and form no fistulæ, particularly in the lower eyelid, a good cicatrization will for the most part ensue, which will not impede the movements of the eyelid. If how-

ever the suppuration should, from neglect, proceed to a bad ichorous suppuration, then in consequence of the loss of substance occasioned by it, there may very readily supervene adhesion, contraction, or total destruction of the canaliculæ lachrymales, and a consequent stillicidium lachrymarum, prolapsus of the upper eyelid, and eversion or inversion of the eyelid.

So long as an active inflammatory state of the eyelid is present, and the disease is as yet local, apply poultices with cold water or oxycrat. If however inflammatory fever be already present, adopt a general and local anti-phlogistic treatment, according to the degree of inflammation and kind of constitution.

If the surgeon now perceive that suppuration can no longer be averted, he ought to promote it on the principles already laid down in the section on Inflammation of the Eyes in General. If an abscess forms, and if it be in the upper eyelid, it will generally open spontaneously, without injury to the future form of the palpebra. If it form in the angles of the eyelids, or in the under eyelid, it must be open-

ed with a lancet in the course of the fibres of the orbicularis muscle. When fistulæ are already present in the eyelids, it then becomes necessary, as is already sufficiently known in surgery, sometimes to form counter-openings, sometimes to enlarge them by the knife, or when this is not necessary, by prepared sponge. Injections, and pressure on the wounds, when practicable, must effect the rest of the cure.

Should gangrene have attacked the eyelid, the patient may be allowed a nourishing, easily digested diet, and let him have volatile and permanently stimulating and strengthening medicines, as calamus, old wine, bark, and so forth. Externally may be applied poultices of willow or oak-bark, mixed with spirituous fluids, also Jesuits' bark; for example the following, by Le Febure:

℞. Cort. Chin. ℥i.
Salis Ammoniac. ʒii. coq. c.
Aq. fontan. ad Colatur. ℥viii. adde.
Camphor. ℈ii.
Spir. Vin. Rect. ʒi.

To be applied to the eyelid by means of linen compresses.

Pure Erysipelatous Inflammation of the Eyelids. Blepharophthalmitis Erysipelatosa, Œdema calidum Palpebrarum.

A pale, yellowish red, transparent looking, shining swelling, takes place on both eyelids, and spreads quickly and far, without defined limits, as well upwards on the eyebrows, as often even downwards on the half of the face. The redness disappears by pressure applied for a moment. By and by the swelling becomes very soft and watery on the edges of the eyelids. The pain is trifling, not pulsating, rather burning, tensive and lancinating when touched. The heat of the swelling is not great. The secretions and excretions of the eye, as well as the mucous secretion of the nose, are sensibly increased.

Here constitutional disorder arises only in consequence of bad treatment. If it has actually arisen, gangrene may readily supervene.

The symptoms of the first stage go thus far.

But when the heat and pain have decreased, and the redness and swelling augmented, an effusion of glutinous lymph appears on the diseased parts, which quickly hardens in the air and forms a kind of crust, or when smaller or larger vesicles are observed, which burst and pour out a coagulating lymph, then is the second stage commenced.

Whatever can induce erysipelatous inflammation on other parts of the body, may the more readily do so on the eyelids. The sudden effect of a cold current of air, or the quick suppression of sweat, is a chief cause. Also stings of bees, of wasps, and other insects, &c.

The PROGNOSIS is very good in sound robust habits, for the affection disappears for the most part of itself, without going into the second stage.

If the disease have already gone into the second stage, there remains in weak people a great disposition to relapses.

If such patients wash the crusts with cold water, an Œdema frigidum Palpebrarum read-

ily forms, which may induce various improper shapes of the eyelid. If the erysipelatous inflammation of the eyelids have from neglect, proceeded to a true Blepharophthalmitis, a kindly suppuration never takes place, the matter makes an exit for itself in many parts, through the skin already in part disorganized, and then commonly, ill-conditioned tedious ulcers arise, which may leave behind them many diseased consequences.

In erysipelatous inflammations of the eyelids which have arisen from the sting of insects, and when the sting has not been extracted, gangrene or even sphacelus often takes place rapidly.

In regard to the CURE, in the first stage poultices of cold water are sufficient.

If the first stage be already over, then dry warm air, dry warm compresses, or light bags of herbs,* in weak people, with the addition of

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* ℞. Flor. Chamomel.
—— Sambuc, a. part. i.
Farin. Fabar. part. ii. M.

camphor, are to be recommended. In such patients, the cure will be much promoted by the exhibition of diaphoretics, even of camphor.

If an actual abscess form, all the rules of cure of the second stage of pure Blepharophthalmitis will apply.

Pure Inflammation of the Glands of the Eyelid. Blepharophthalmitis Glandulosa, Blepharoblennorrhœa, Lippitudo. Purulent Inflammation of the Eyelid, Blear-eye, &c.

This disease has been loaded with many other names, for sometimes it appears in old women, and then it has been described under the title of Ophthalmia Vetularum;* sometimes it has obtained a name from particular symptoms, as Ophthalmia Serosa, when the eyes were swimming in tears, or Ophthalmia Sicca, when the

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* Reil, *Memorab. Clinic. Medico-Pract.* vol. i. Fascicul. 1. p. 3, &c.

degree of inflammation was so high as to prevent the secretion of tears.

Sometimes it has been confounded even with Ophthalmiæ, which have a specific course, *e. g.* with the Psorophthalmia, * with Scrofulous Ophthalmia, and with many others.

The pure Blepharophthalmitis Glandulosa shall alone be treated of here, which however readily complicates itself with cachectic diseases, in which case it is no longer pure, but deserves to be distinguished according to the name of the cachectic disease, as Blepharophthalmitis Glandulosa Scrofulosa, and so forth.

The disease appears in the following manner: The edges of the eyelids become affected with a bright red, hardish, sensible swelling, accompanied with itching in the canthi, or even in the whole edge of the eyelids, sometimes alternating with a sense of burning. The secre-

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* As Ware, *Chirurgische Beobachtun. über das Auge, übersetzt von Runde, mit vorrede und Anmerkung versehen von Himly*, 1809, I. Bd. Seite 79.

tion of tears is at the same time more or less increased; they are acrid, and redden and excoriate the cheeks. If the inflammation become gradually more severe, and extend over the conjunctiva of the eyeball, then the secretion of tears ceases, and the eye becomes dry; the patients in consequence believe they feel sand under the eyelids, which they do not venture to move, from fear of pain.

Thus proceeds the first stage, which sometimes passes over so rapidly that the surgeon does not observe it.

By degrees the dryness, the burning and itching of the eyelids diminish, the Meibomian glands begin to form mucus, by which the eyelids and ciliæ are glued together, the conjunctiva palpebrarum is swelled and very red, the angles of the eye, and often the whole edges of the eyelids, become excoriated, and give to this inflammation sometimes a strong resemblance to Psorophthalmia, the secretion of mucus also increases more and more, and grows more puriform. The disease has an exacerba-

tion three or four hours after dinner and supper, when the chylification has commenced.

By this time the edges of the eyelids are often as if eroded, galled, painful, and the excoriations spread always farther when the disease is left to itself.

A similar chronic oozing-out of puriform fluid, has been in former times described under the name of Lippitudo, as a peculiar form of disease. When again the angles only suffered from a similar discharge, it was called Lippitudo Angularis, Uncleanness of the Canthi, Lemositas; and if excoriations arose which corroded the canthi, this state was called Peribrosis, Perivrasis.

Often when, from favourable circumstances, the puriform secretion of mucus abates, the excoriation also disappears, yet an unnatural secretion of Meibomian mucus still remains behind, which may readily become habitual. But if this secretion of mucus be removed by art or accidentally favourable circumstances,

then the whole disease terminates with an unusual serous secretion.

The disease arises particularly in those who dwell in an impure corrupted air, also in tanners. It attacks every age and sex, only it is more commonly met with in the female than in the male.

Too bright light, bad indigestible dishes, and such like, may also conduce much to the production of the disease.

The PROGNOSIS is good when the inflammation is met with in the first stage, and when it is not too severe. This inflammation when pure does not go so far as to produce constitutional disorder, unless by improper management it have already advanced to a Bepharophthalmitis.

If a flow of puriform mucus be already present, a trichiasis may readily happen; and when at the same time considerable excoriations of the edges of the eyelids are present, an Anchyloblepharon Partiale may take place.

If the excoriations be particularly severe in the angles of the eyelids, and their commissures have become corroded, an eversion of the lower eyelid will commonly arise, which, as it occurs most frequently in old relaxed subjects, is named Ectropium Senile. If the flow of mucus from the eyelids be very strong, and be treated by too cold or too astringent eye-waters and salves, which may probably suppress it suddenly, a permanent weakness of sight may follow, particularly in very irritable individuals.

When the disease is met with in its first stage, it may be often suppressed in the bud by cold poultices of water, or a weak oxycrat. The noxious causes must also be removed as much as possible.

But when an actual secretion of mucus has taken place, we may use, according to Beer, a very weak solution of Sublimate, with Mucilage of Quince seed, and Laudan. Liquid. Sydenh., washing the eye with it from four to

six times daily, drying the eye carefully after each application.

℞. Merc. Sublim. Corros. gr. i. vel ss.
Aquæ Rosar. ℥iv.
Mucilag. Sem. Cydon. ʒi.
Laud. Liquid. Syd. ♈i. M. solvendo.

If excoriations be already present, or of some standing, then use the Ung. Ophthalm. Janini, which consists of Axung. Porcin. ℥ss., Tut. Præpar. Bol. Armen. a. a. ʒii., et Merc. Precip. Alb. ʒi.; only it is to be remarked, that the difference of individuals must be here considered, for if the eye be already in an irritable state, or if the patient have great sensibility, the proportion of the mercury and of the astringent substances must be diminished. As it is now known* that the white bole is the least

* The immortal Adam Schmidt has treated of all this more particularly and in a superior manner, in the *Bibliotheca Ophthalmica*, published by the meritorious Himly, vol. iii. p. 63, 1st ¶.

astringent, the red a stronger, and the Armenian still more so, it will be well, at the same time that the white precipitate is diminished, to add at first in young irritable subjects and children, the white bole in place of the Armenian, and to smear only the size of a lentil seed of the salve on the eyelid once a-day. In such patients the following will suffice:

℞. Axung. Porc. ℥ss.
Bol. Alb. ʒiv.
Merc. Precip. Alb. ʒss.

Old callous people, on the other hand, bear very well the usual proportions of Janin's ointment.

There are however individuals who cannot bear the local application of mercury, nor are they benefited by unguents. In such cases have recourse to the Lapis Divinus of St. Yves.*

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* The mode of preparing it is as follows:
℞. Nitri Depurati.
Vitriol. Cærul.
Aluminis Crud. a. a. ℥viii.

Even in the use of this application the peculiarities of the patient must be considered; the more irritable the eye, and the longer the disease has continued, the less quantity must be dissolved in a certain proportion of water. At first ten to fifteen grains dissolved in six to eight, or ten ounces of water, and mixed with a drachm of spirit, is sufficient; it is to be gradually increased to thirty grains, dissolved in six to ten ounces of water, with the addition of Spt. Camphoræ. It is to be made always lukewarm, and applied by means of a fine sponge held over the eye, until the fluid entering it excites some smarting. It is to be used three or four times daily, and seldomer during the decrease of the disease.

The eye-water must never become cold upon the eye.

Sometimes when the excoriations of the edges of the eyelids, under the continuance of the

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Contrita et mixta fluant in crucibulo, quibus sub finem addatur Camphoræ Tritæ ℥ss. rite agitata refrigerantur.

most pernicious causes, and in old, relaxed, callous people, increase more and more, and terminate in larger or smaller ulcers, which obstinately resist all the above means, recourse must be had to the use of the Ung. Citrin. Pharmacop. Londin.* praised by James Ware, and in the worst cases even to the local use of the Lapis Infernalis, already recommended by St. Yves; the latter however must be used with caution. Commonly, however, these obstinate cases do not belong to the pure Blepharophthalmia Glandulosa, but are consequences of different cachectic diseases.

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* It is prepared in the following manner:

℞. Hydrargyri Puri ʒi.
Spirit. Nitri ʒii.

Digere super arenam, ut fiat solutio, quæ calidissima adhuc misceatur cum Axung. Porcinæ liquefactæ et in coagulum denuo tendentis libra una, strenne agitando in mortario marmoreo ut fiat Unguentum. The edges of the eyelids are to be rubbed once daily with this ointment, before going to bed.

Inflammation of the Eyes of New-born Children. Ophthalmia Neonatorum.

The Ophthalmia Purulenta, Oculus Purulentus of Ware, Clap of the Eyelid and of the Eye, Blepharoblennorrhœa, Ophthalmoblennorrhœa of Adam Schmidt. Also known by the name Ophthalmia Puriformis, Lippitudo Neonatorum, Blear-eye of new-born children.*

Symptoms of the disease.—At the third, sixth, eighth, fourteenth day, or even later† after the birth of the child, this often quickly destructive inflammation commences with aversion to light, with a slight redness of the conjunctiva palpebrarum, particularly at the inner

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* This inflammation is considered here as a variety of Blepharophthalmia Glandulosa. It may be either pure or specific.

† Walther.

canthus,* and with an itching of the eyelids, which are covered with a glutinous mucus, that hardens and glues the eyelids together. If they are opened, tears trickle from the eye. At the same time the palpebral conjunctiva is more or less affected with swelling, which is at first soft, somewhat elastic, smooth, and bleeds readily.

The aversion to light and the secretion of mucus are now greater; the mucus acquires a more puriform appearance, becomes thicker, and yellowish. The swelling of the palpebral conjunctiva, particularly of the upper eyelid, as well as the redness, increase, and give it (according to Saunders) the appearance of a finely injected fœtal stomach. Also the epidermis of the upper eyelid acquires a redness, which when the children stretch themselves or cry, verges to a livid colour, during which, at the same

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* See a *Treatise on some Practical Points relating to the Diseases of the Eye,* by the late John Cunningham Saunders, Lond. 1816, p. 37.

time the muscles of the eye push the eyeball forwards. If, after having softened the glued eyelids with lukewarm water, the eye be now opened, there passes out from between the eyelids, according to the greater or less severity of the disease, more or less of a whitish, sometimes yellowish, sometimes greenish-yellow mucus, often mixed with streaks of blood, or in bad cases with an ichor which, resembling the washings of flesh, is often so copious as to cover the whole cheek. The eyeball is now frequently, so covered over with mucus, that its external tunics cannot be distinguished. If the eye be cleared of the mucus as well as possible, and if only Blepharoblennorrhœa be present, the conjunctiva-bulbi will be found very little reddened; the conjunctiva palpebrarum, on the other hand, will be found very red, swollen, and loaded with matter. If the inflammation be more violent, and Ophthalmoblennorrhœa be present, then the conjunctiva-bulbi is also very red, and already so much swollen, that it almost entirely covers the cornea, the

centre of which can with difficulty be discovered. When during these examinations of the eye the infants cry much, and endeavour to close the eye, it not unfrequently happens that the upper eyelid, which is now much swollen and fleshy, becomes everted, and a permanent Ectropium remains, if the eyelid be not immediately replaced in the manner to be described hereafter.

Afterwards, the secretion of puriform mucus ceases by degrees, and a secretion of pure mucus comes on, and at last the whole disease goes off with a flow of tears. If the diseased action has been extensive, but has not penetrated deeply, then at the termination of the disease there only remains a muddiness of the cornea, which not unfrequently disappears afterwards spontaneously. If however the inflammation have been very severe, and the secretion of puriform mucus considerable, then the cornea exfoliates, is converted into a mass of matter, which at last bursts in the centre, either suddenly, under severe pain, or slowly without

pain, and the aqueous humour being now discharged, the iris comes to lie in the aperture. Should the ravages proceed farther, the iris may even at last fall out of the eye, along with a greater or smaller part of the vitreous humour, and complete colliquation of the latter ensue. The disease does not always stop here, for even in less destructive degrees of this affection, the children often continue afterwards imperfectly nourished, and become atrophic.

If several ulcers take place in the now loosened texture of the cornea, if they penetrate deeper, and destroy in different places the innermost lamellæ of the cornea, then the aqueous humour flows out, and the iris penetrates through the holes and exhibits a Staphyloma racemosum.

If at first the one eye only be affected, the other follows soon afterwards.

Sometimes before the secretion of puriform mucus has as yet increased to a great degree, either in the Blepharo- or in the Ophthalmoblennorrhœa, a pretty smart hæmorrhage from

the eye appears, which often returns two or three times, and which must be welcomed by the surgeon, for if the blood have the natural appearance, then the secretion of puriform mucus becomes afterwards less severe and destructive, and the swelling of the affected parts rapidly declines.

Causes.—Young, weakly, newly-born children, twin children, children born three at a birth, children in foundling hospitals, in lying-in houses, and those who live in bad, damp habitations, become most readily attacked by this disease. Children who, during birth, have been infected in consequence of the mother having Fluor Albus, suffer also this inflammation; if the Fluor Albus was of a venereal nature, the suffering for the most part attains an exceedingly severe degree, on which point the observations of great men, as of Ph. Fr. Walther, Adam Schmidt, Scarpa, and others, agree. In like manner children who, immediately after birth, are exposed to cold, to a current of air, or to the effects of a bright light, who are scan-

tily nourished, who are scrofulous, who are exposed to cold during the presence of measles or of scarlatina, are not unfrequently subjected to the disease.

Also in weakly adults of both sexes who live in polluted air, and who are ill nourished, a Blepharo- and Ophthalmoblennorrhœa not unfrequently are met with, which however never run their course so rapidly and destructively as in new-born infants, and which are much modified by the habit of the patient.

Prognosis.—When the disease has consisted only in a Blepharoblennorrhœa, the prognosis is very favourable, for if the inflammation leave bad effects behind it, they for the most part consist only in a dimness of the cornea, which can be removed, or even disappears spontaneously, or they may consist sometimes in an eversion of the upper eyelid, Ectropium.

When however Ophthalmoblennorrhœa has taken place, and the cornea has become perforated even in a small point, there readily remains a partial adhesion of the iris with the

cornea, Synechia Anterior, along with a more or less extensive cicatrix, which sometimes entirely destroys the sight. If, during the inflammation, either the greatest part or the whole circumference of the iris have become adherent to the cornea, even though the cornea be not perforated, then in the first case a partial, and in the second case a total staphyloma of the cornea takes place. If however colliquation of the whole bulb have taken place, then there remains an ill shaped, small, whitish stump in place of the eyeball; the eyelids fall inwards, and the opening of the eyelids remains for ever closed.

Cure.—If called at the commencement of the disease, which is rarely the case, the antiphlogistic practice must always be had recourse to, and more or less actively employed according to the degree of the disease and constitution of the patient. One leech may be applied at the inner canthus over the lachrymal sac. The disease may be often cured without this, if

only poultices of cold water be immediately used. *

At the same time remove all causes of the disease, and consider the mother's milk when good as the best nourishment for the infant. If disorder in the bowels be present, as retention of the meconium, order a gentle laxative. †

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* Saunders, a deceased English surgeon, and one of the latest writers on this subject, was more bold in the use of the anti-phlogistic cure. He applied leeches around the eye, and allowed them to bleed afterwards until the child became pale, so that the topical bleeding operated also as a general one. Within twenty-four hours the danger to the eye was already on the wane, on which, he gradually proceeded to the use of gently astringent medicines. He rejects the scarifications of the conjunctiva recommended by Ware, Reil, &c., because they injure the eye too much, and do not procure a sufficient evacuation of blood.

† A mixture of magnesia and rhubarb with some liquid is given by most surgeons. Beer and others recommend, at the commencement of the disease, a strong purge of calomel and jalap; Saunders, when he finds the rhubarb and magnesia too weak, gives rhubarb with calomel.

If the secretion of mucus increase and become puriform, the eye must be cleaned from the superfluous mucus by frequently washing it out, or cautiously syringing it by means of Anel's syringe, with a warm eye-water,* after which the eye should be carefully dried with a warm cloth, and lastly covered with a compress

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* For this purpose, the following solution recommended by Saunders is suitable:

℞. Zinci Sulphat. gr. i.
Aq. Distill. ℥i.

To which some Quince Mucilage may be added. The following mixture by Adam Schmidt (*Ophthalmolog. Biblioth. von Himly und Ad. Schmidt,* III. Bd. 2 st. S. 107.) is also used with advantage:

℞. Aq. Distill. ℥x.
Vitriol. Alb. ℈i.
Ext. Saturn. ʒss.
Spt. Camphor. ʒii. M.

For washing the eye two to four times daily. When the secretion of mucus is so profuse that the washing out with the solution must be performed every two or three hours, then the proportion of the ingredients to the water should be reduced one half. On the contrary, this eye-water must be made stronger when an older child or an adult is the subject of treatment.

rubbed over with camphor, or with a little bag of herbs.

In the stage named Suppurative, and when ulcers present themselves on the cornea, the introduction of the Laudan. Sydenh. into the eye once or twice daily, is of essential service.*

If the flow of puriform mucus diminish

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* In place of the Laudan. liq. Sydenh. Ware, Schmidt, Reil, and many others, use Bate's liquor, which is a strong astringent, and soon diminishes the secretion of mucus. It is composed as follows:

℞. Vitriol. Cærul.
Boli. Armen. a. a. ʒiv.
Camphor. ʒi. M. ft. pulvis.

An ounce of this is to be thrown into four pounds of boiling water, then removed from the fire and allowed to settle. For use, a drachm of this fluid is mixed with two ounces of well-water. Beer has seen no benefit from this liquid, and Saunders never used stronger astringents for the Ophthalmia Neonatorum than the already mentioned solution of zinc, or a solution of from two to six grains of alum in one ounce of distilled water. With these two local means he succeeded always, and cured the disease for the most part in fourteen days or three weeks. He says, that stronger astringents often renew the inflammation, and increase the secretion of mucus.

under this treatment, and yet much thin whitish mucus continues to be discharged from the eye, or if the conjunctiva has a granular appearance, then the salves of mercury,* with or without styptics, and laying aside all eye-waters during their use, will show their powers, and remove the disease for the most part within a few days. Slight remaining opacities of the cornea, as already stated, often disappear of themselves, but their removal may be accelerated by the careful use of Janin's salve.

To prevent an Ectropium, the eye must be opened as little as possible, and only with the greatest delicacy, and never in children when they are in the act of stretching themselves, of yawning, or of crying.† If however an eversion have already taken place, the palpebra

* As the Janin's ointment, or a simple mixture of ointment with Merc. Precip. Rub.

† I have never seen any harm arise from opening the eyelids, which I do daily to ascertain the state of the cornea. *Translator.*

is to be replaced immediately, according to Schmidt, in the following manner:—after having smeared the points of the forefinger and thumb of both hands with fresh unsalted butter, the tarsus is to be laid hold of with these fingers, at the external and internal canthus, and stretched slowly a little upwards, and then quickly downwards. If the swelling of the conjunctiva be great, hard, and granular, the thumbs must be more pressed in the middle of the eyelid when the replacement will succeed. If it do not succeed, the termination of the inflammation must be waited for, and the ectropium treated as a disease consequent to it.

So much in regard to topical means.

In regard to general treatment in the blennorrhœal stage of the disease, when the powers of puriform secretion flag, and the object is to excite the powers of reproduction, Calamus Aromaticus, or Bark, with Opium and Æther, must be given. In children a month old, six grains of Extract of Bark, mixed with the

child's food, has been given every four hours, with the greatest advantage. *

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* *Note of the Translator.*

In this populous city, I have many opportunities of treating this frequently formidable disease in all its stages. The proportion of the lower orders of society in this, as in all other manufacturing towns, is very great, in whom the predisposing causes arising from bad lodging, improper diet, filth, carelessness, and debilitated scrofulous habits, are in powerful, extensive, and constant operation. Several children of the poor, and even of the middle ranks, are brought to me every year with the cornea sloughed, and the little patients irremediably doomed to permanent blindness. In the most of such cases, I have discovered that this formidable event has been the consequence of midwives and nurses assuring the parents that the complaint was not at all dangerous, thus causing a ruinous delay before they have recourse to proper medical aid. That this complaint sometimes exists in so very slight a degree, as hardly to merit attention or treatment further than many old women can afford, cannot be doubted, but in all cases when it has assumed its decided form, no nurse should for one day be trusted with the treatment of a disease so fraught with danger to this precious organ.

From the many miserable victims to this disease which come within my notice, I conceive it a duty which the

teachers of midwifery owe to mankind, to impress this circumstance on the minds of their pupils, whether males or females.

If the inflammation be merely confined to the eyelids, (Blepharoblennorrhœa,) the disease may continue long of a very formidable aspect, with a profuse discharge of puriform fluid, without causing any serious mischief to the organ, provided the nurse do nothing else than keep the parts clean by washing with tepid milk and water. But the great cause of misfortune is, that the nurse cannot know, in consequence of the great swelling of the parts, whether the inflammation has not already extended to the conjunctiva bulbi, and to the cornea, (Ophthalmoblennorrhœa,) where, in the space of forty-eight hours, it often works incurable mischief. The exact state of the bulb when the eyelids are thus much swelled can only be ascertained by the surgeon, and I have always been able to accomplish this, however great the swelling may have been, either by the fingers alone, or by the gentle use of Pellier's Speculum.

I have seen one case in which the disease commenced so late as the twenty-first day, and I have met with only three cases in which it affected one eye only.

In regard to the causes of this affection, I am inclined to suspect, in the great majority of cases, inoculation with Fluor Albus. The mothers of patients affected with this disease will at least generally be found the subjects of this discharge. The other alleged causes, in so far as I have been able to observe, are much less frequent.

As to the treatment, there is no doubt in my mind that a

decidedly anti-phlogistic one is the best, provided the disease be met with in the first week, and I have often witnessed, in the Infirmary for Diseases of the Eye, in Charter-House Square, London, first instituted by Saunders, the efficacy and advantage of his very active plan of treatment, as mentioned above. If, however, the disease be not met with till the second or third week, which is by no means uncommon among the poor, then, in place of leeches, the bleeding caused by which in new-born infants is sometimes really alarming, unless the surgeon be in attendance, I almost invariably practise scarification of the eyelids. That the bleeding in this way is either inadequate or irritating to the eye, is quite contrary to my observations. In all operations on the eye, very much depends on the mode of performing them, and in none more so than in scarification of the eyelids. The child should be laid horizontally, and its head held between the knees of the surgeon. The eyelids, one after the other, should be everted, which is most readily accomplished, almost indeed without aid, on account of their swelled state, augmented by the crying of the child. One gentle stroke with the side of a lancet along the fleshy granular looking conjunctiva will now cause the blood to flow in profusion. The flow, however, will be almost instantly stopt, unless the eversion be continued by the surgeon's fingers for the space of two minutes, during all which time the crying of the child invariably forces such a profusion of blood into the whole capillary vessels of the head and face, that as much blood can be discharged in this way as will almost immediately give a check to the

disease. A second, third, or even fourth scarification on the succeeding days may be required, but this operation is so expeditious, so efficient, and so free of all danger, that it in my opinion far surpasses in utility the tedious, sometimes hazardous, and always troublesome plan of leeching. Even at the very commencement of the disease this plan will be found exceedingly advantageous.

Blisters have been too little recommended in this complaint. They are most decidedly advantageous after previous bleeding, and infants born even in the seventh month bear them well. Immediately after the first bleeding, a small blister, two inches square, may be applied on the middle and back part of the scalp. It will blister the part in eight or ten hours, when it should be removed, and many children hardly cry during its action. The blistered part should be dressed once daily with Ung. Pulv. Canth., but as soon as it causes the child to become fretful, it should be removed, and Ung. Resinos applied in place of it. In this way a flow of pus from the part will be excited in less than three days, and from the hour a flow of pus is obtained, the discharge and swelling of the eye begin to decline.

Now is the period for commencing astringents. When employed sooner they certainly do more harm than good. If after four trials of a weak astringent, decided benefit be not observed, I deem it a proof that it has been commenced too early in the disease. I find a solution of Argentum Nitratum, one grain and a half to an ounce of water, more efficacious than any other application, particularly when the cornea and conjunctiva are excoriated or

ulcerated. It should be applied only twice a-day, in which cases the intermediate washings of the eye should be made with tepid milk and water. With these three means, and the daily exhibition of a gentle doze of magnesia, all cases of the Ophthalmia Neonatorum in the stages prior to sloughing of the cornea, may be successfully combated. The salves recommended above, however, will be found very useful towards the end of the disease, applied once daily, in very small quantity.

The trials I have made of Bate's astringent, so strongly recommended by Ware, do not enable me to speak at all favourably of it, nor have I found so much advantage from the Vin. Opii, so greatly recommended by Beer in this affection, as I do from it in the declining stages of almost every other inflammation of the eyes. If the surgeon wish to vary his applications, the Zinc lotions recommended above, or a solution of four grains of Lapis Divinus in one ounce of water, dropt into the eye twice a-day, will be found very serviceable.

The Pure Stye. Hardeolum Crithe.

This circumscribed inflammation, which commonly has its seat in a Meibomian gland, often only in the cellular substance, is very seldom pure, for generally it is connected with cachectic diseases, particularly with scrofula.

In the first stage, a small circumscribed inflamed boil appears, with tension and severe itching on the edge of one eyelid, and by its increase of size hinders the movement of the eyelid; towards the end of this stage, the boil becomes dark red, hard, and more irritable. The swelling becomes more round, or bean-shaped, and in the latter case has reached its height, but it is always equally elevated, and glistening. The eyelids are more or less glued together during night.

In the second stage, the redness of the abscess increases quickly, becomes brownish-red, the swelling becomes conical, with a feeling of weight in the eyelid, and shows at its apex a

yellowish-red white point, which opens and emits matter, and then either immediately or after discharging for some days, the boil falls, and heals with a good cicatrix.

I can only adduce a pinch of the eyelid with a blunt pair of pincers, as a cause of this disease, of which I have seen only one case. Professor Beer met with it only in dirty drunkards of bad constitutions. However, a stye arising in this latter manner is not in every instance to be called a Pure Stye.

If the patient avoid the hurtful causes, the disease will, for the most part, resolve in the first stage.

If these causes be not removed in the second stage, then the suppuration readily ends in induration, and a hard, insensible, oval, scarcely reddened swelling remains, which is called Hail Stone, Chalazion, Grando, Lythiasis, Tophus, Porosis, &c.

To resolve this little inflammation in the first stage, apply often to the eye linen cloths, moistened with cold water or oxycrat, or make

use of poultices of ice, which prove often speedily beneficial.

In the second stage, the suppuration is to be promoted by poultices of crumb of bread boiled in milk, with the addition of much saffron. Also poultices of roasted apples are suitable. The abscess will soon open spontaneously, and by afterwards dressing with Empl. Diachyl. Comp. the disease will yield in a short time. It is to be carefully observed however, that the surgeon have resolved all hardness which existed around the swelling, before he heals the abscess, so that no Chalazion may form.

Pure Erysipelatous Swelling of the Internal Canthus. Anchylops Erysipelatosa.

This disease is not unfrequently confounded with an inflammation of the lachrymal sac.

Symptoms of the first stage.—This inflammation has, *upon this spot*, all the possible

characteristic marks which attend the Pure Erysipelatous Inflammation of the Eyelids, and it even extends, not unfrequently, more or less over the eyelids. As the inflammation attacks the lachrymal papillæ and canaliculi, the absorption of the tears is consequently suspended, and the lachrymal papillæ are shrivelled. So long as the lachrymal sac partakes not in the inflammation, the swelling in the internal canthus is not very hard; but if it partake in it, then by careful examination, a bean-shaped, hard elevation may be felt under the erysipelatous inflammation, and it even sometimes shows itself by a projecting redness, which however announces merely a severe inflammation in the anterior wall of the lachrymal sac. The lachrymal punctæ are now entirely shut, the lachrymal papillæ are shrivelled, the nostril of the affected side is dry and uncommonly sensible, so that a slight irritation excites severe sneezing.

Symptoms of the second stage.—Here also the principal symptoms of the second stage of

Pure Erysipelatous Inflammation of the Eyelids take place. The tears become again absorbed, and the caruncula lachrymalis throws out much mucus, by which it appears entirely covered. Even in the lachrymal sac a secretion of mucus occurs, and it may be pressed out as well through the puncta lachrymalia as the nose.

If the inflammation has been very severe on the lachrymal papillæ and canaliculi, the absorption of tears is not re-established in this stage, but there frequently remains for a long time, a considerable stillicidium lachrymarum from atony of these parts. If the lachrymal sac were much inflamed in the first stage, a considerable collection of mucus is found in it in the second stage; this mucus can neither be evacuated through the lachrymal puncta, nor through the nasal canal, but the superficial suppuration penetrates always deeper, and at last perforates the anterior wall of the sac, particularly when the disease is neglected; this forms a state which Professor Beer calls

a false fistula of the lachrymal sac, because the pus has not been formed in the lachrymal sac itself, nor made for itself a fistulous outlet, on the contrary, the matter has poured itself from without into the lachrymal sac. An abscess which does not penetrate into the lachrymal sac, but has its seat only in the caruncula and so forth, is named by Beer Ægylops Simplex, and he distinguishes it from the false fistula of the lachrymal sac, partly by the probe, partly by the mucus and matter, which flow out on the slightest pressure, and which generally appear mixed, but not blended with tears, and partly by the quantity of the fluid that issues, which in the Ægylops Simplex is much smaller.

Causes.—Much weeping in those who have a vulnerable cutaneous system, * and subse-

* People, particularly the pale complexioned, who have a fine, thin, reddish, glistening skin, in whom the cheeks are full of minute blood-vessels, are endowed, according to Ad. Schmidt, with a vulnerable cutaneous system. The skins of such patients become easily red, they are prone to erysipelas, and seldom bear the application of salves.

quent exposure to a cold current of air, often gives rise to this form of disease; moreover, the causes producing erysipelatous inflammation of the eyelids, are also causes of the present affection.

Prognosis in the first stage.—If the disease be simple, and properly managed, the prognosis is very good, for at most, a temporary stillicidium lachrymarum, occasioned by atony of the lachrymal papillæ, will remain, which will be chiefly felt in a cold air. If, however, the lachrymal sac be at the same time inflamed, the prognosis is much more unfavourable, for then a perforation of the anterior wall of the lachrymal sac often takes place, and by unguarded treatment a blennorrhœa of the sac may remain.

Prognosis in the second stage.—So long as the suppuration is superficial, the prognosis continues favourable; it becomes more unfavourable when an abscess forms, and most so when already a false fistula lachrymalis has been produced, for then, besides an obstinate blennorrhœa being left behind, there may also

remain an entire destruction of the lachrymal canaliculi, and an incurable stillicidium lachrymarum may be produced.

In the latter case the mucous membrane of the lachrymal sac must be destroyed, and the whole sac, so to speak, annihilated, to prevent with certainty another after-disease of the lachrymal sac, called Hydrops sacci lacrymalis.

Cure.—In the first stage, poultices of cold water and exposure to cold fresh air are the best remedies.

In the second stage the cure entirely corresponds with that of the same stage of erysipelatous inflammation of the eyelids, only, when the sac partakes in the disease, attention must be paid to it. Hence, if an abscess form, it must be soon ripened by poultices, and then never wait for spontaneous opening, but open it as soon as fluctuation is perceived, as the perforation of the sac will thus be best prevented. If the latter, however, have already taken place, the probe is to be used as little as possible, and the abscess is to be cleaned at

most once a-day, with Anel's syringe and lukewarm water, mixed with laudanum, and then some charpie, moistened with laudanum, is to be carefully introduced into the anterior part of the wound, so as not to hinder the healing of the aperture in the sac.

Of Wounds of the Region of the Eyes and of the Eyelids.

These must be treated with great attention, because otherwise they may not only leave behind them incurable deformity of the wounded part, but are even capable of disturbing the function of the retina, or of entirely destroying it.

Horizontal wounds of the skin on the forehead, when not far distant from the eyebrow, and if of considerable length, must be brought together quickly and carefully, otherwsie the integuments of the eyebrow sink down, and if a lengthening of the integuments of the upper

eyelid, or a sensible prolapsus of it (Blepharoptosis) does not follow as a consequence, the harmony of the features will be at least disturbed. If the wound be very large, if the patient have the custom of often knitting the brow, and if the skin in general be relaxed, the dry suture alone is not to be trusted to, but the wound must be united with at least two stitches, at the same time applying plaster and a suitable bandage.

Perpendicular cutaneous wounds of the forehead require only the dry suture and a uniting bandage.

Oblique cutaneous wounds of the forehead require, according to their direction, at one time the dry, at other times the bloody suture.

In all simple cutaneous wounds of the forehead, inflammation and suppuration must be prevented for both retard the cure, and can readily change the previously good suppuration into an ichorous one, in consequence of which, after a loss of substance has been caused, an ectropium of the upper eyelid, or rather an

inability completely to shut the eyelids, viz. a shortening of the whole eyelid, *Lagophthalmos*, will be often induced.

The PROGNOSIS of these cutaneous wounds of the forehead is favourable in obedient, quiet people, and becomes unfavourable, the more the wound is neglected, and the more untractable the patient is, for the superciliary nerve may be readily wounded, and a bad suppuration succeeding, may produce, after cicatrization, an amaurotic weakness of sight, or even complete amaurosis, in which the iris is immoveable, and the pupil is either uncommonly dilated or contracted.

Professor Beer ascribes this weakness of sight, or amaurosis itself, to the tearing and tension of the twigs of the superciliary nerve, caused by the bad cicatrix, and cures it by bold incisions in the region of the supraciliary foramen, penetrating to the bone.

This species of amaurosis, in cases of inconsiderable wounds, often appears for the first time when the wound is fully cicatrized; on

the other hand, in greater wounds it may take place immediately after the inflicting of the wound, when, it is not to be attributed to a tearing of the superciliary nerve, but to a concussion of the internal structures of the eye, or to a laceration of the retina.

It may be known that the amaurotic blindness is to be ascribed to a weakness of the eye produced by concussion, when there is no remarkable contusion or laceration in the site of the branches of the superciliary nerve, and when the iris of the half or entirely blind eye is perfectly motionless and extended in a high degree, in consequence of which the pupil is much contracted. If there be, moreover, an extravasation of blood in the chambers of the eye, or even, without this, if there be a deep pressing pain in the whole eye, and such a degree of sensibility that the eyeball cannot bear the least touch, and if at the same time the vision be so destroyed, as merely to leave the smallest sense of light, the surgeon will not err if he declare an actual laceration of the

retina, and prognosticate an incurable blindness. The appearances are very different in the eye when only a contusion, laceration, and imperfect division of the greater branches of the superciliary nerve have suddenly produced the amaurosis, for, even when the eye is blind, it yet retains in such a case a more or less distinct sensation of light, and although the iris be even motionless, yet the pupil is found not only very unusually dilated, but the iris much narrower towards the canthi than above or below, so that the pupil appears like that of ruminating animals, and the pupillary edge of the iris seems so reclined backwards, that the small circle of the iris is no longer observable.

If the amaurosis be the product of a contusion combined with dilaceration of the superciliary nerve, the above enumerated characteristic symptoms will be found mixed; only the iris will have nearly or entirely vanished.

From what has been said, it follows that amaurosis, succeeding wounds of the eyebrows, may form in four ways, viz. First, by powerful

laceration and extension of the larger branches of the superciliary nerve, when it is the consequence only of a bad cicatrization: in this case the amaurosis shows itself either during the formation, or soon after the completion of the cicatrix. Secondly, by mere concussion or actual laceration of the retina, and by displacement and dislocation of several other internal structures of the eyeball. In both cases the blindness manifests itself immediately after the wound, only in the first, it appears more as mere amaurotic weakness of sight, but in the second always as perfect amaurosis. Thirdly, by contusion and imperfect dilaceration of the branches of the superciliary nerve. Even here the amaurotic weakness of sight, more rarely perfect amaurosis, follows closely on the accident, yet never so quickly as in the foregoing case. Fourthly and lastly, by severe concussion of the eyeball and of its surrounding parts, and contusion and tearing asunder of the superciliary nerve at the same time;—here the amau-

rotic blindness arises in the very moment of the accident.

Wounds of the lower region of the eye may leave behind them not only amaurotic amblyopy, but even perfect amaurosis, when, namely, the nervus infraorbitalis is wounded, and the consequent irregular cicatrization presses upon and tears its branches.

By neglect of these wounds of the inferior region of the eye, ectropium or lagophthalmus is often produced.

The prognosis in all such wounds must be given with the greatest caution, and even declined so long as the extent of the wound has not been fully considered. Even when the greater or less severity of the wound has been certainly known, the prognosis must still be given with the greatest circumspection.

Very severe wounds of the upper region of the eye are the more serious, the more the wound penetrates the frontal bone, and the more concussion is connected with it; for some-

times such symptoms evince themselves after these wounds, as excite apprehension more for the life than the eye of the person injured. If the wound was accompanied with great force, it commonly shows its injurious consequence, not only upon the eye of the affected side, but upon both eyes by an amaurotic amblyopy, which seems to be produced by a powerful concussion of the anterior part of the brain, and by an atony of both optic nerves.

Here, also, the prognosis must be cautious, because the blindness often continues during life. If the amaurosis have arisen very quickly after the wound of the forehead, and yet have neither increased nor diminished since that time, if the patient never complain of headach in the region of the eyebrow, and the eye be bright, clear, and lively, if no one of the mental faculties have suffered, then there is well-grounded hope of the surgeon perfectly re-establishing the sight.

But if the weakness of sight always increase,

if the eyes meantime be irritated by the light, if the patient complain of severe continued headach in the region of the eyebrow, and if his faculties have suffered, beware of a favourable prognosis, for in such a case not only does a perfect amaurosis form, but there appear sometimes consequences, dangerous to life.

Intensely severe wounds of the eyebrows are often dangerous, particularly when the supraorbitory nerve is torn and dilacerated, and a severe concussion of the brain accompanies. There often remains a weakness of the Levator palpebræ superioris, *Atoniatonblepharon*, or an actual palsy of this muscle, *Blepharoptosis paralytica*, *Blepharoplegia*, or an actual palsy of the muscles of the eyeball, and a consequent prolapsus of the eyeball, *Ophthalmoptosis Paralytica*, or *Ophthalmoplegia*.

As almost all such severe wounds are more or less accompanied with loss of substance, and can seldom be healed by the first intention, the surgeon must so conduct the inflammation which follows, that the lost parts be as quickly

reproduced as possible by a healthy suppuration; on which account he must remove the splinters of bone which may be present, and if the patient be of a strong habit, and no contusions or extravasations of blood be present, he must avert all hurtful external agents by the application of warm, emollient, light poultices. If on the other hand contusions and extravasations be complicated with the wound, if the patient be old, and the powers which are necessary to the formation of good matter be declining, or if he be reckoned among the weak and relaxed, then in place of emollient poultices, let the surgeon rather make use of warm aromatic, vinous poultices, along with which may be advantageously used, particularly for example immediately after the wound has happened, the following mixture recommended by Le Febure, for sugillation of the eyelids:

℞. Sal. Ammoniac. depur. ʒss.
Aq. Distill. ℥viii.
Spt. Vin. Rect. ʒii. M. solvendo.

When an amaurotic weakness of sight has

arisen from a slight concussion of the eye, it will gradually disappear of itself, when properly treated according to the rules of surgery. But if along with the concussion of the eye there was also combined even a slight laceration of the retina, or a displacement of other internal structures of the eye, then, even with the most careful treatment of the wounded spot, the amaurosis will not disappear. If the blindness be caused only by a wound of the superciliary nerve, all its branches must be cut across, immediately after the wound has happened, by an incision down to the bone, for the operation will not always have a curative effect, if not performed till after the wound have cicatrized, and the amaurosis become more complete and of longer standing.

When only atony of the retina forms the ground of the amaurosis which may be present, the disease must then be treated as a local evil, which will be considered more fully and separately under the division of Amaurosis.

If after considerable wounds of the region of

the eyebrows, deformities of the upper eyelid remain, and if the wound be perfectly but ill cicatrized, they are for the most part entirely incurable; when such deformities are foreseen previous to perfect cicatrization, they may be often prevented.

Wounds of the *eyelids* may induce the same diseases, which wounds of the eyebrows and of the forehead produce, only they cannot give rise to the amaurotic state of the eye, unless they have been much mismanaged. These wounds are either penetrating or non-penetrating. The penetrating wounds of the eyelid readily leave behind them, when not properly treated, a slit in the eyelid, Coloboma. The prognosis is here very doubtful, and the more so the greater the loss of substance has been, and the more the eye itself has suffered from pressure, &c.

To heal non-penetrating wounds of the eyelids, the following rules must be observed. Remove whatever may be lying in the wound, as protruding parts of the orbicular muscle, then unite the wound (whether it lie in a per-

pendicular or horizontal direction) when more than one fourth of an inch in length, and in the upper eyelid, by both the bloody* and dry suture, and treat the patient with much general care, so that no eversion, prolapsus, inversion, or Lagophthalmos may follow.

In non-penetrating wounds of the under eyelid, the dry suture and a proper bandage are sufficient to produce reunion.

The treatment of penetrating wounds of the eyelid is the same with that of non-penetrating wounds, only the bloody suture must be still more frequently used even in the under eyelid.† The prognosis is here very various; fa-

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* Even superficial cutaneous wounds of the upper eyelid, whether oblique, horizontal, or perpendicular, must be stitched with the needle, because the powerful motion of the orbicular muscle would destroy the mere dry suture.

† Wounds dividing the commissures of the eyelids, and which may often cause an ectropium, must, when possible, be united with the bloody, or at all events with the dry suture.

vourable when no loss of substance is connected with the wound, and when the patient has immediately applied for aid, for in such a case, not only the form but the use of the eyelid may be again restored; unfavourable, when there is loss of substance, for then the patient must be contented with a partial restoration of the shape of the eyelid; the prognosis will again become still more unfavourable, when the slit of the eyelid, coloboma, is neglected, when it is not immediately stitched, and when the edges have become callous. In this case it becomes necessary to cut off the callous edge, in order to unite the slit. If loss of substance be combined with a slit in the eyelid, not unfrequently no reunion can be brought about; in such a case, the sight and form of the eye are gradually lost, for it is no longer protected from external agents, and is not kept properly moist. Palliative means, as mucilaginous eye-waters, may prevent for a short time this unfavourable result.

In order to apply the bloody suture on the

eyelid and cure a coloboma, (which is sometimes observed as a congenital disease,) the following circumstances are to be observed:— first, one stitch must be applied immediately above the tarsus, without, however, penetrating either it or the palpebral conjunctiva; the remaining necessary stitches are to be afterwards applied higher up. * After dry slips of English court plaster have been neatly applied between the stitches, the threads of the lowest stitches are to be fixed, by means of a plaster on the cheek, those of the highest stitches, in the same manner on the brow, so that the motions of the eyelid may hinder as little as possible the quick union of the wound.

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* Most surgeons, as Richter, Beer, Callisens, &c. recommended this, fearing that disfiguration of the eyelids might remain: sometimes a needle has been passed through the tarsus itself, (*e. g.* by Prof. Dzoudi,) and in this manner the slit has been cured to the very edge of the tarsus, without any disagreeable consequence. †

† *Siehe dessen Geschichte, des Clinischen Institutes für Chirurgie und Augenheilkunde auf der Universitat zu Halle*, 1818, S. 157.

Callosity of the Eyelid. Tylosis, Pacheablepharosis, Pacheablephara, Pachytes.

An equable, or uneven, knotty, very insensible, hard callous swelling of the edges of the eyelid, is the disease to be here treated of. For the most part it comes on after scrofulous inflammations of the eyelids which have frequently relapsed; relaxed, torpid and gouty patients are however also subject to the disease. A partial or total loss of the ciliæ, *Psilosis, Ptilosis,* is at the same time not unfrequently observed, which however nature can restore, because for the most part the bulbs of the ciliæ have not suffered.

The tylosis is in many cases very difficult of cure, particularly when a scrofulous or arthritic diathesis still continues, and when the disease occurs in old people; in such cases it may go on to scirrhus palpebræ. If the puncta lachrymalia have also become callous, insensible, and incapable of absorbing the tears,

which is often the case in old people, a stillicidium lachrymarum sometimes remains, even when the tylosis has been in a great measure removed.

After having paid as much attention as possible to the Scrofula or Gout, and when no œdema of the eyelid is present, we may, according to Graefe, * make use of the following lukewarm poultice:

℞. Pulv. herbæ Hyosciam.
—— ——– Cicutæ.
Farin. Sem. Lini. a. a. q. v. coque c. suffic.
Aquæ ad consistentiam Cataplasmatis.

Beer † very properly recommends warm poultices of Cicuta and Saponaria, with Camphor, which he employs in swellings of the edges of the eyelids, and continues them until they

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* *Repertorium augenarztlicher heilformeln,* Berlin, 1817, p. 55.

† *Lehre von den Augenkrankheiten,* Wien. 1813 and 1817, 2 B. S. 52.

become red and irritable. Afterwards, the use of salves of red or white precipitate, at first weak, and gradually made stronger, with or without camphor, but best without any styptic, will be found of great use. If these means prove ineffectual, then the Ung. Citrinum Pharm. Edinburg. (the preparation of which will be given in another place) will certainly complete the cure.

Hail-stone, Chalazion, Chalazosis, Grando, Lapis Palpebrarum, Lythiasis, Tophus, Porosis.

A hardened stye not advancing to suppuration, which is sometimes observed single, sometimes along with several other hardened, (often even recent) styes on the edges of the eyelids, and which exhibits a circumscribed, round, or bean-shaped, moveable, insensible and hardish swelling, is called Grando, Chalazion, and if this swelling contain a very hard, firm, some-

what stony substance, it is then known by the name of Lythiasis, Lapis Palpebrarum.

As all that can induce and keep up stye is also favourable to the production of chalazion, so here the scrofulous diathesis, or actual scrofulous disease, will generally be found present, which renders the prognosis unfavourable, particularly if several chalazions be present at the same time, and have been treated with escharotics; in which case they may sometimes proceed to a more or less extended induration of the eyelid, Scirrhus Palpebræ. Also the chalazions which we sometimes see originate in old, cachectic, filthy drunkards, may sometimes change by mismanagement into a scirrhus palpebræ. Chalazions with an uneven nodulated surface, which appear in people who suffer from malignant swellings of the glands, particularly in old maids, and after the cessation of the menses, may sometimes, after becoming discoloured and causing stinging, burning pains, advance to a cancerous ulcer.

The PROGNOSIS in chalazion however is very

favourable, if the scrofulous and other predisposing causes of disease have been removed.

In regard to the CURE, the following is to be observed:

First, if the chalazion be as yet small, if it lie immediately under the external integuments, and if it have not already advanced to induration of the eyelid, then its resolution may still be attempted. This is done by rubbing the small swelling, either between the fingers or by the topical use of the Balsam. Vitæ Hoffm., the Cologne Water, Æther with Tinct. Opii, or by Hartshorn and Tinct. Cantharidis. After each rubbing, the chalazion is to be covered with a plaster of Empl. Diachyl. C. et Emp. Cicutæ. By this the chalazion resolves, or inflaming, will be brought to suppuration, or it remains as it was, in which last case we must proceed to the most certain cure, viz. the operation, which consists in laying bare the swelling by an incision over it, taking hold of it with a hook and cutting it out.

For the cure of the malignant chalazion, escharotics were formerly used, which however do more harm than good; the excision of the swelling, removes the disease sometimes with much more certainty. If mammary or uterine cancer be present at the same time, and the affection of the eyelid be evidently connected with these diseases, it must for the most part be considered a noli me tangere.

Callosity and Cancer of the Eyelid. Scirrhus et Cancer Palpebræ.

Scirrhus of the palpebra consists in a circumscribed, very hard, immoveable swelling of the eyelid, often corresponding in colour with the rest of the skin, but often distinctly furnished with varicose vessels; so long as it continues benign, it is entirely free of pain.

Such indurations commonly originate from blows on the eyelid, from frequent relapses of

inflammation of the eyelid, from tylosis, less frequently from stye.

In regard to the cure, many surgeons have used narcotics, antimonials, mercurials and other means, for the most part without the smallest benefit.

Beer considers the real scirrhus of the eyelid to be a real noli me tangere, so long as it continues benign.

If external mechanical causes give occasion to inflammation of an induration of the eyelid, or if, without evident cause, in cachectic and other patients, continued, deep-penetrating, lancinating pains take place in the induration; if the swelling increase, if varicose vessels form more and more upon it and its neighbourhood, if the skin become discoloured, and at last a suspicious, varicose, livid redness show itself in the conjunctiva bulbi, if by chance fever also be added, then the surgeon cannot doubt the perfect developement of an occult cancer.

An actual cancer of the eyelid also sometimes forms from a wart-like fungus, or from a hard,

nodulated, small swelling or papula, surrounded with varicose blood-vessels, without being preceded by any scirrhus palpebræ.

The prognosis in this case is naturally very bad; and even the cure, which, according to the modern surgeons, consists only in complete excision of the suspected carcinomatous part of the palpebra, is dubious.

Of Carbuncle of the Eyelids.

This disease, sometimes supervening in the lowest and filthiest of mankind, and which commonly shows itself in the upper eyelid, consists in nothing else than an inflammatory furuncle, which proceeds to gangrene, and presents itself in the following manner. After a dark red swelling has formed under severe, burning, stinging pains, ash-coloured vesicles appear upon it, which burst, and soon change the swelling into a pit containing ichor; more frequently however no vesicles form upon the

swelling, but it terminates a few days after its commencement, or even sooner, in gangrene, and a cavity excreting an ichorous fluid. The cure is accomplished by external, and also on account of the importance of the affected parts, by internal means. On this account, let small scarifications be made through the mortified parts, make use of poultices of a decoction of bark with tincture of myrrh and camphor, and let mineral acids with bark be taken internally. By adopting this treatment, the cellular membrane, lost by the gangrene, will readily be restored by the granulation which follows.

Watery Swelling of the Eyelid. Œdema Palpebrarum, Leucophlegmatia Palpebrarum. Cutaneous Dropsy of the Eyelid.

Watery swellings of the eyelids are particularly observed after erysipelatous inflammations of the eyelids, after scarlatinous ophthalmiæ, and after the too frequent use of emollient fo-

mentations and poultices during different inflammatory affections of the eyes, particularly when these poultices are inadvertently allowed to become cold upon the eyes. They appear particularly in the upper eyelid, and are characterized by an unirritable, soft, pale, doughy swelling, in which the finger leaves a pit when pressed upon it.

Bags of aromatic, warm, dry herbs, with and without camphor, or gentle friction with flannel which has been well smoked with frankincense, mastic, or other aromatic resins, are sufficient to effect a cure.

When an ophthalmia in the acute stage is accompanied with a watery swelling of the eyelid, the above means are by no means suitable; if the inflammation be properly treated, the œdema will often disappear along with it.

Prolapsus of the Upper Eyelid. Ptosis, Lapsus Palpebræ Superioris, Blepharoptosis.

This disease is produced, First, by a relaxation and extension of the common integuments of the upper eyelid, and consequent folds of the skin, by which the energy of the levator palpebræ superioris is somewhat, but not very considerably diminished. The patient in this state cannot elevate the eyelid, at least not properly, it hangs over the cornea, yet the efforts of the levator may be seen if the patient in the first place, open the eyelid. If the superfluous skin which causes the ptosis be pinched between the fingers, without however dragging it, then the patient can open the eyelids, because the oppression of the superfluous folds of skin no longer prevents the levator palpebræ from showing its power.

The causes which in this case, produce the prolapsus, are, particularly, horizontal wounds of the forehead, swellings which have long kept

the skin of the eyelid upon the stretch; also, too long employment of emollient, and relaxing means, particularly in scrofulous ophthalmia, and in torpid people, &c. Sometimes ptosis palpebræ is congenital.

The best cure, is by the operation which consists in removing the folds of skin and stitching the wound. Cauterization with sulphuric acid, the hot iron, and other means, have also however been used with success.

The operation is best performed in the following manner:

After laying hold of, with proper forceps, which are broad at the point of the blades,* the relaxed skin of the eyelid, in such a way that the patient can properly open it, and perfectly shut it, the surgeon by means of bent scissors cuts away at one stroke the superfluous skin. The bloody suture is to be applied after the bleeding is stopped, with the addition of strips of plaster, on which account two stitches

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* See Beer, vol. ii. Plate of Instruments, fig. 1.

only are required, and thus the wound is to be healed quickly, and with the utmost possible care.

A second kind of blepharoptosis, arises from a relaxation of the levator of the upper eyelid, without any accompanying organic disease, Atoniatonblepharon, Atonia Palpebræ.

When both eyelids hang down over the cornea, the patient being unable to raise them, then the orbicularis palpebrarum is generally atonic, or paralyzed. With this paralysis of the eyelid (Blepharoplegia) there is combined a feeling of numbness, of disorder of the head on the affected side, and not unfrequently a degree of palsy and weakness in the neighbouring parts. In this state the eyelid is slightly swollen with œdema, and when raised by the finger sinks down again very gradually. The eyeball itself has moreover for the most part a dull appearance, the iris is sluggish, the pupil dilated, and the vision weakened or entirely destroyed. Sometimes the muscles of the eye

appear to be paralyzed even when vision continues, in which case they allow the bulb to fall as if it were out of the orbit, Ophthalmoptosis Paralytica.

The causes which may induce an atony or palsy of the eyelid, are different. It has often arisen from the too long continued use of emollient poultices during inflammation of the eyes, or from continued firm binding of the eye; it is often the consequence of an apoplexy, and is then commonly combined with palsy of other parts; sometimes it comes on also in chlorotic girls, and in general in relaxed subjects, without being attended with other evident causes. In rare cases, prolapsus of the eyelid has been observed to return periodically.

The CURE of blepharoptosis is often accomplished in the more slight cases by proper diet, dry air, a moderate use of spirituous drinks, and rubbing the eyelid with warmed flannel. In more obstinate cases, make use of frictions, with irritating means, *c. g.* with Spir. Serpilli,

Liquor Ammon. Caust., and Aq. Calcar. Ust, Tinct. Cantharid., or, according to Reil, with the following mixture:

℞. Olei Laur. ʒii.
— Mac. Exprim. ʒiss.
— Caryophyll. ℈i.
Bals. Peruvian. ʒii. M.

to be rubbed in upon the temple and eyelid. Shower baths on the back of the head are often efficacious.

In very obstinate cases galvanism may be made use of, or even the method of cure proposed by Adam Schmidt.* He applied between the angle of the lower jaw and the process mastoideus, a plaster, having in it an opening one inch in diameter, and covered this opening with a paste of Lap. Caust. and water. He laid over this escharotic paste a covering

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* *Neue heilung, der Augenliedlähmung, und des anhaltenden, Augenliedkrampfes. In den Abhandlungen der K. K. Med. Chir. Josephsakademie zu Wien.* 2 Bd. S. 365. *Auch in der Ophthalmolog. Biblioth. v. Himly und Schmidt.*

of plaster, and allowed it time to operate, for which purpose three to four hours are commonly sufficient. He dressed the black slough which forms, with digestive salve, and in six or eight days after, when it had fallen out, he kept up the suppuration thus produced, by dressing with the same salve, or if the ulcer required a stimulus, with the addition of Tinct. Cantharidis or red Precipitate. The intention of this practice was to irritate some nervous ramifications of the third branch of the fifth pair, lying near to the mastoid process, which are known to give twigs to the eyelid.

If the blepharoptosis have arisen from a general disease, then the latter must of course be treated according to the common rules; give internally, when necessary, stimulating medicines, as Arnica, Antimonials, Rad. Valerian or Caryophilat., and such like.

Cramp of the Eyelid. Spasmus Palpebrarum, Blepharospasmus.

Although this disease scarcely merits particular consideration, as it almost always appears to be a symptom or consequence of other diseases, yet I shall briefly notice it, so that in regard to Diagnosis, it may in no case be confounded with Ptosis Palpebræ.

Blepharospasmus is always an involuntary, suddenly arising contraction of both eyelids, for the most part periodical, and sometimes accompanied with pain, in consequence of which the external skin of the upper eyelid appears wrinkled, and the muscles surrounding the eye distorted. Sometimes hemicrania and deafness precede. During the spasm, even the surgeon finds a difficulty in opening the eye. When this cramp of the eyelid continues, it is called Blepharospasmus tonicus, which may often continue for a long time; if however it show itself by a continual spasmodic shutting and opening

of the eyelids, it is consequently clonic, and then this phenomenon is called Nictitatio Palpebrarum, blinking of the eyelid.

The causes of this cramp reside most frequently in general diseases, on which account it is found in hypochondriasis hysteria, chorea, cases of worms, in scrofulous ophthalmiæ, &c.

The treatment is to be directed according to the general disease. In very obstinate cramp of the eyelid, the plan of cure of Schmidt by caustics, as mentioned under Blepharoptosis, is of great use. In like manner, moxa or blisters applied at a greater or less distance from the eye, afford sometimes speedy benefit.

If the cramp have been caused by foreign bodies falling into the eye, the rules given for pure ophthalmia in general are to be followed.

Blinking is often congenital, often also it is the consequence of loss of the eyebrows, ciliæ, &c.

Want of Power to Shut the Eyelids. Lagophthalmus, Oculus Leporinus.

By this is understood that unusual state of the eyelid, in which for the most part the upper, less frequently the under eyelid, appears shortened, and on that account is not capable of covering the eyeball.

As causes of this deformity may be enumerated, not unfrequently a spasm of the Levator. Palpeb. super., or a relaxation of the eyelid, often also ill cicatrized wounds or ulcers of the integuments of the eye, accompanied with loss of substance. In rare cases a short eyelid is congenital.*

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* I have frequently met with lagophthalmus occasioned by a temporary palsy of one half of the face produced by exposure to a current of air. I have seen this disease continue from two weeks to twelve months, during all which time the eye could not be closed, on account of the paralysis of the orbicularis palpebrarum. I have accurately noted a number of these cases, and feel convinced that

The PROGNOSIS is often favourable, particularly when no organic diseases induce the affection. When however the shortening has arisen after considerable loss of substance of the palpebra, then, as the eye is exposed to all external injuries, ophthalmia, opacity and dryness of the cornea may result. If however the short-

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cold is the invariable cause, producing at first an inflammatory state of the pes anserinus, and perhaps in some cases, an inflammatory swelling and diminution of the caliber of the aquæ ductus Fallopii, causing consequent pressure on the trunk of the nerve. Pain radiates from the ear along all the branches of the nerve for some days; it then ceases, and perfect semifacial palsy follows. This disease is soonest overcome by antiphlogistic treatment for the first few days, then by applying a semilunar-shaped blister around the ear, and rubbing the paralyzed parts with stimulating liniments. The only description of this affection I have met with is in Duncan's *Annals of Medicine* for 1800. The paper is entitled, " De Paralysi Musculorum Faciei Rheumatica," by Nicolaus Friedrèich. The affection might be mistaken, by a careless observer, for palsy dependent on the state of the sensorium, and I have even seen it treated as such by a medical man of the first eminence in his profession. *Translator.*

ening be inconsiderable, the prognosis, at least in regard to the function of the eye, will be much more favourable, because in this case the eyeball will be but partially uncovered.

In regard to the CURE, spasm must be removed by antispasmodic means, and if relaxation have been the cause, it is to be treated by topical stimuli and tonics, during which, however, the general diseases from which the spasm and relaxation have sprung, are on no account to be overlooked.

If cicatrices of the integuments of the eyelid have been the cause, then, as in ectropium, an incision of the eyelid, and mechanical extension of the wound till healed, has been recommended, but a favourable issue has seldom been found. Professor Dzondi * has very lately made known a plan, by which he has already often removed the shortening or eversion of the eyelid; viz. after having loosened the cica-

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* *Beitrage zur Vervallkommnung, der Heilkunde,* 1816, S. 169.

trice, which is often immoveable in consequence of the shortened subjacent cellular substance, by means of frequently moving it backwards and forwards, and continuing this from four to eight weeks, it is then to be cut through perfectly and horizontally, and the cellular substance beneath is to be loosened with the knife, so that nothing may oppose the stretching of the wound. On the day of operation the wound is to be dressed dry, but afterwards with Ung. Cantharidis and Basilicon, commonly in equal parts, so as to excite, by means of this irritating salve, a strong granulation; this dressing is to be continued at least for four weeks, once in twenty-four hours, and the granulations which have shot forth are not to be allowed to heal until they project at least a line above the edge of the wound, and are sufficiently firm to retain the former wound extended, after cicatrization has taken place.

Inversion of the Edge of the Eyelid. Entropium, Introversio Palpebrarum.

This defect of the eye consists in such inversion of the edge of the lower or of the upper, or of both eyelids at once, that the external margin of the edge of the eyelid, which in the natural state stands off from the bulb, in this case directly touches it, in consequence of which, the ciliæ are at the same time so directed towards the eyeball that they touch its surface (trichiasis) and irritate it; they cause constant lachrymation of the eyes, and when the disease is neglected they readily induce chronic, destructive inflammation of the eyes,* and panniform opacity of the cornea.

The chief causes capable of producing entropia are relaxations or elongations of the external skin of the eyelid, also inflammations of different kinds which attack the tarsus, crumple

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* See Plate I. fig. 1.

it, and leave it as if it were in a kind of corrugated condition. Even without the tarsus being attacked, ophthalmiæ may become exciting causes of an entropium, when namely those afflicted with inflammation are constantly occupied in working with, and observing very small, particularly shining objects, during which they often find themselves obliged spasmodically to shut the eyelids. Also shortening of the inner surface of the eyelid by cicatrices, &c. or even swellings of the eyelid, not unfrequently excite its inversion.

When relaxation and lengthening of the external skin, or contraction of the internal membrane of the palpebræ, is the cause of entropium,* and the eyelid, by pinching up and making gentle abduction of its external skin, can be brought into a proper direction, it is then necessary to cut away the superfluous skin, and to heal the wound by the first intention, accor-

* In the former case, the entropium commences with blepharoptosis.

ding to the operation recommended for ptosis palpebræ.* When the inversion is met with at its commencement in old relaxed people, and is of a paralytic nature, the local use of different stimuli, as of the Tinctura Cantharidis, &c. is serviceable.

If, however, the entropium have arisen from frequent, particularly scrofulous inflammations of the glands of the eyelids, which have caused a crumpling and curving of the tarsus, whereby the vitiated, reddened and swollen edge of the eyelid, cannot, by drawing or lifting up its external skin, be brought into a proper direction, but on the contrary always remains inclined

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* Entropia arising from slight relaxation of the skin from previous œdema of the cellular substance, are cured by Demours, (*Traité des Maladies des Yeux, avec des planches coloriées, representant ces maladies, d'apres nature,* à Paris, 1818, tom. 1. page 106,) by the already long known method of applying two or three slips of court plaster, with which the entropium is brought to a proper direction, and he asserts that he has sometimes cured the inversion in this way, in twenty days.

towards the eyeball, then the cure is very doubtful. Even the most celebrated oculists reckon this disease amongst the most incurable, and recommend, so as in some degree to save the eyeball, the tearing out those ciliæ that are turned in, because they irritate the eye, and favour the formation of a pannus. In place of this, a practice has been a short time ago employed in England, which I shall not omit to describe here.

Saunders, relying that the levator palpebræ superioris inserts itself in the integuments and conjunctiva of the eyelid, performed in the following manner the complete excision of the crumpled and bent tarsus. After he had introduced between the eyelid and the eyeball, a thin bony or silver plate, bent to the shape of the eyelid, so as to render it tense, he made an incision through the skin and orbicularis palpebrarum, in the direction of the tarsus, and immediately above the roots of the ciliæ, then exposed carefully the external surface of the tarsus, until its orbital edge was laid bare, he

then cut through the conjunctiva and lateral parts where the tarsus had still to be separated, without however wounding the puncta.*

The integuments and conjunctiva healed in a few days, yet in all the cases in which Saunders operated, a fungus of considerable size grew from the incision, which however could be removed by escharotics, though best of all by the knife.

A small cicatrix on the inner surface of the tarsus, sometimes causes a partial entropium, and the inverted ciliæ irritate very much the eyeball, in which case Saunders cuts out as much of the skin of the eyelid which lies in a faulty direction, as will remove the bulbs of the ciliæ belonging to this part.

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* Tab. I. fig. 2. represents the open eye deprived of its tarsus, and fig. 3. represents the closed eye.

Inversion of the Ciliæ, Trichiasis, Trichosis, and the Double Row of Eyelashes, Distichiasis, Phalangosis.

That disease which consists in a more or less irregular direction of the eyelashes towards the bulb, is called Trichiasis. This fault of the ciliæ occurring most frequently in the lower eyelid, either extends over all the ciliæ, (which however seldom happens, unless when trichiasis is the consequence of entropium,) or there are only some of the lashes turned in upon the eyeball, in which case the diagnosis is not always easy. The effect of the inversion of the ciliæ is a constant irritation upon the anterior surface of the eyeball, from which result not unfrequently lachrymation, pains with inflammation, formation of pannus, specks and ulcerations of the cornea.

When besides the regular row of ciliæ, there exists a more or less perfect row of pseudociliæ, which is turned in upon and irritates the eyeball,

the disease is called Distichiasis, Phalangosis; see Tab. I. fig. 4. The deviation of the regular ciliæ, in which some of them are bent forwards and others backwards, and thus form as if it were a double row, has also had the above name applied to it. The first kind, or proper distichiasis, occurs sometimes with the hairs growing from the conjunctiva bulbi, and other structures of the eye,* and is rarely met with,

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* Similar remarkable cases of production of hairs, in parts where commonly, hairs are never seen, have been described by many surgeons. De Gazelles (*Journal de Medicine*, tom. xxiv.) met with a hair which grew from the cornea, and always grew again after being extracted. Wardrop has seen hairs grow from excrescences on the cornea, and Himly from excrescences on the conjunctiva, (*Albinus Acad. Annot.* Lib. III. cap. viii.) and Morgagni observed them in the caruncula lachrymalis. In like manner, Demours (*Traité des Maladies des Yeux*) and others have observed hairs sometimes on the cornea, sclerotica, or other parts of the eye. Wardrop and Demours have painted such cases.

I lately met with a case, in which one exceedingly strong hair grew out of the conjunctiva lining the lower tarsus. It was directed perpendicularly towards the bulb,

so that many celebrated surgeons, as Scarpa, &c. have never seen it, and doubt its existence. Others again, among these Demours, have seen it more than twenty times, and Beer sees this disease at least once yearly.

Besides entropium, which is always accompanied with trichiasis, the latter disease has many other causes. Neglected scrofulous inflammations of the glands of the eyelids, psorophthalmiæ, and such like, which are accompanied with excoriations and ulcers of the edges of the eyelid, in a particular manner induce this disease. In such cases the edges of the eyelids become callous, cicatrized, and thoroughly misshapen; the ciliæ are consequently thrown from their natural direction, and not unfrequently obliged to grow at the inner margin of the edge of the eyelid. Sometimes however, the bulbs of the edge of

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and irritated it much. The natural ciliæ were of a light colour, the pseudocilia jet black, and double the strength of the common ciliæ. *Translator.*

the eyelid have grown properly, and the ciliæ only have become curved towards the bulb; this may happen not unfrequently in pure inflammation of the glands of the eyelid, in which there are no excoriations, ulcers and cicatrices, if the patients lie constantly on their face, with the ciliæ glued and crusted together.

The PROGNOSIS in trichiasis is favourable, when the cause does not consist in any deranged form of the edge of the eyelid. If caused however, by such a vitiation, a radical cure will rarely be practicable.*

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* Dr. Jäger, of Vienna, has lately proposed the following operation for the removal of complete trichiasis, caused by disorganization of the edge of the eyelid, and it has been already performed by him, repeatedly, with very favourable results. He fixes, with forceps, the external part of the edge of the eyelid near to the external canthus, and then cuts away, with a knife formed for the purpose, (for which however a good scalpel can be used,) the external margin of the eyelid which contains the roots of the ciliæ, commencing at the temporal angle. The incision must be so conducted as to reach, but not to wound, the tarsus. I saw this operation performed by Dr. Rossa, in the Cli-

The cure is performed by gradually * and frequently tearing out the faulty ciliæ by means of hair forceps, with which the ciliæ are laid hold of as near to the edge of the eyelids as possible, and then quickly extracted in a straight direction. If the direction of the bulbs of the ciliæ be regular, (which is generally the case when there are no disorganizations present in consequence of cicatrices, &c.) the ciliæ which soon grow, will resume their regular form. In all other cases, the extraction is only a palliative measure, but may sometimes become a radical cure, when the extraction is diligently persevered in. Callisens, Rowley, Beer and others, have seen the reproduction of the ciliæ and pseudociliæ cease, particularly in young people. The trichiasis

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nical Hospital of Professor Beer, in the year 1817, but could not wait for the result of the operation, on account of my journey to the south of Europe.

* In order to prevent too strong an irritation, from three to four only of the ciliæ are to be extracted daily.

which accompanies entropium can only be removed by curing the latter affection.

Everted Eyelid, Ectropium, Ectropion, Eversio Palpebrarum, Blear-eye.

This disease, occurring chiefly in the lower eyelid, consists in a turning outwards of the inner surface of the eyelid, see Table I. fig. 5, which besides producing a great deformity, for the most part also causes a stillicidium of tears if the ectropium be in the lower eyelid, because the gutter formed by this eyelid, and which leads the tears to the lower punctum, is wanting.

The cause of this disease, is often a shortening of the integuments of the eyelid produced by wounds, ulcers, &c., in which case, it not unfrequently appears along with an inability to shut the eye completely, (Lagophthalmus,) or the cause may be a lengthening and extension of the inner membrane of the eyelid,

from a soft and fleshy swelling, or by a general fungous state of this membrane, (Ectropium Sarcomatosum vel Luxurians,) which is often occasioned by a palpebral blennorrhœa, an ophthalmia gonorrhoica, by scrofulous ophthalmiæ, or even pure ophthalmiæ when they appear with great swelling of the conjunctiva. Sometimes a blepharophthalmia glandulosa pura gives rise to ectropium of the eyelid, particularly in old relaxed subjects, in whom the commissures of the eyelids become by degrees corroded; in this case it is called Ectropium Senile. That ectropium which occurs in old people, and is caused by a palsy of the orbicularis muscle, has the same name applied to it.

In those ectropiums which have arisen from cicatrices, and consequent shortening of the external parts of the eyelid, the prognosis is very unfavourable, the deformity being for the most part incurable. The same, nearly, may be said of the ectropium senile. The ectropium sarcomatosum, on the other hand, particularly when recent, admits of a much more fa-

vourable prognosis, and, even when of long standing, can for the most part be removed without much trouble.

The CURE, as already seen from the prognosis, is very uncertain when cicatrices of the eyelids produce the disease; horizontal incisions in the integuments of the eyelid, and drawing asunder the wound, so as to lengthen it, have been long since recommended, but no advantage has been found from this treatment. Parts of the conjunctiva connected with the ectropium have been cut out with more advantage. When practicable, the external cicatrices have also been cut out, and the wound allowed to heal during the proper replacement of the ectropium.

All proposed measures to soften and stretch out the cicatrices are of no avail.

In ectropium senile, from relaxation and palsy of the orbicularis muscle, when recent, the Oleum Fœniculi, or Tinct. Cantharid. &c., may be used; when the disease is already of

long standing, these, as well as the use of suitable internal remedies, as of Bark, Steel, &c., are of no avail.

Eversions which have arisen from wounds of the canthi must be reduced and treated according to the rules given in wounds of the eyelids.

In order to heal the ectropium sarcomatosum, when the disease is as yet recent, streak the still sensible fungus daily, with Tinct. Opii Simplex, to which is afterwards added, Æther Sulphuric., then proceed to the use of weak salves, with red Precipitate; exchange these afterwards for Lapis Infernalis, and lastly, for Butter of Antimony, in using which, the parts must be previously scarified, if they be entirely insensible. If the fungous conjunctiva be hard, horny, insensible, and of long standing, the hard swelling is to be drawn out as much as possible from the eyelid, by means of a hook, and to be cut away as clean as possible from the tarsus, without however wounding the latter. The eyelid immediately unites

in its natural position, inflames gently, and heals in a few days.

Adhesion of the Edges of the Eyelids to each other, Anchyloblepharon, and Adhesion of the Eyeball with the Eyelid, Symblepharon, Prophysis, Enothes.

The definition of these two diseases is given in the title.

There is a complete and an incomplete adhesion of the edges of the eyelids with each other, Anchyloblepharon perfectum et imperfectum. There is also an adhesion of the eyelid with the greatest part of the conjunctiva bulbi, Symblepharon perfectum, and an adhesion occurring only at particular points of it, Symblepharon imperfectum. Both kinds of symblepharon occur most frequently in the upper eyelid only.

A more important distinction exists, when the anchyloblepharon and symblepharon are

produced directly, or through the medium of a particular membrane; in the first case, between the edges of both eyelids, in the latter, between the eyelid and the eyeball, because this kind of intermediate adhesion must have much influence on the prognosis.

The least important distinction which has been made, is that between anchyloblepharon spurium et verum, the latter of which means an actual adhesion, the former only a glueing together of the eyelids.

The CAUSES which most frequently induce both diseases are especially of a traumatic kind; for example, burns from fire, quick lime, or concentrated mineral acids. Also, psorophthalmiæ attended with excoriation, sometimes leave behind them these adhesions. In rare cases the disease is congenital.

The PROGNOSIS depends entirely on the particular form of the disease, the greater the clearness in the perception of light, and the more partial the adhesions, the greater are the hopes of a cure, and, on the other hand, the

more the perception of light is obscured, and the stronger the adhesions are, particularly those which take place directly with the eyeball, the less are the hopes to be entertained from an operation, which is the sole method of cure.

Operation for Anchyloblepharon.—That the adhesion of the edges of the eyelids is not combined with symblepharon, is discovered by laying hold of the upper eyelid with the finger, and drawing it from the eyeball, and then causing the eye to be strongly moved; in this way the smallest adhesion of the eyeball with the eyelid will not only be discovered, but even its extent may be pretty correctly determined. Also, by means of a fine whalebone probe, the presence of symblepharon is readily discovered. That the cornea is not adherent to the conjunctiva palpebrarum, will be known by the clear perception of light, because the patient discovers through the eyelid weak degrees of light; it may also be ascertained by the probe. If the patient has not

even the slightest perception of light, then we may be convinced of a perfect adhesion of the cornea with the eyelid, and the operation would be useless. If, by the feel of the eyeball through the eyelid, the former be found in any way disorganized, and the perception of light be indistinct, nothing is to be hoped for from the operation.

In order to separate a direct union of the eyelids, the operator, whilst his assistant lays hold of the upper eyelid by a cross fold, and draws it upwards and out from the eyeball, and he himself, in like manner, draws the lower eyelid down and away from the eyeball, introduces a small blunt-pointed bistoury at the inner canthus, between the eyeball and the eyelid, in such a manner, that the incision may be carried slowly towards the outer canthus without wounding either eyelid. If the adhesion be through the medium of a membrane, then the incision must be carried along the edge of the upper eyelid, and the membrane attached to the lower eyelid be

afterwards cut away with a straight pair of scissors.

To prevent a reunion of the separated eyelids, the patient must if possible continue awake during the next night, wash the edges of the wound with Aq. Rosarum et Acet. Saturn., and frequently smear them with a salve of butter and tutia.

Operation for Symblepharon.—If the eyeball adhere immediately with the eyelid, the eyelids are to be pulled out as above, and by means of the small blunt-pointed and elastic scalpel of Leber, the union is to be destroyed rather by gentle pressure than cutting. If on the other hand the adhesion be formed by membraneous bands, these are to be first separated from the conjunctiva palpebræ, then laid hold of with a pair of forceps, and neatly cut away from the conjunctiva bulbi.

Should a relapse occur, which may be prevented by continual motion of the eye, the operation must be repeated.

Pulpy, Melicerous, and Steatomatous encysted Tumours of the Eyelids, and of the parts around.

The patient first observes a very small, soft, elastic, circumscribed, more or less moveable, insensible swelling in the upper eyelid, in the vicinity of the external canthus, near to the eyelid, or in very rare cases in the under eyelid, which does not retain the pressure of the finger, and does not in any way differ from the skin in respect to colour.

The *Pulpy and Melicerous* swellings often increase to the size of a small hen's egg, in which case fluctuation is felt, and they often contain a whitish substance which much resembles the cheesy part of milk. The *Steatomatous* tumours which always appear to form in the vicinity of the eyelid, and never upon it, only attain at most the size of a hazel-nut, and do not of course give the feeling of fluctuation. Those encysted tumours which adhere

to the tarsus are not in general moveable, yet they sometimes give a deceitful feeling of mobility, even when they have adhered firmly to the tarsus. In order to be perfectly convinced of this adhesion before the operation, it must be frequently attempted to move about the tumour gradually in the cellular substance, so as finally to bring it over the edge of the orbit, and as far as the arch of the eyebrow. If this do not happen, it is a certain sign that the sac has adhered to the tarsal cartilage itself, or at least, that it is seated under the orbicularis muscle, and not immediately under the skin. The operation, which is the only remedy, is to be conducted with a regard to this circumstance.

The prognosis in all these encysted tumours is favourable, and there remains behind only a small scar on the skin, when suitable aid has been timeously afforded. If the sac, however, have been awkwardly turned out or destroyed by escharotics, Ec- and Entropia, Lagophthalmus, crumpling of the tarsus, and other incur-

able forms of disease may readily remain behind.

The extirpation of the sac, and the cure of the wound by the first intention, is the most radical and quick remedy for all these encysted tumours. The more easily to perform this, the sac is to be made moveable by frequently shifting it about under the skin, some days before the operation; the skin over the tumour is then to be divided by a simple incision, which however must be more extensive than the tumour, so that the latter may be more readily turned out; then by means of a simple hook, the unopened sac, which is recognized by its whitish colour, is to be laid hold of without perforating it, and partly to be torn loose from the cellular substance and muscles by means of a Leber's knife, blunt and rounded at its point, elastic and cutting on its side; partly when this is impossible it is to be cut loose with the sharp cutting side of the knife, and the wound is to be afterwards healed by the first intention. But if the

tumour were adherent to the tarsus, and could not on that account be wholly extirpated, then a piece of charpie, moistened with warm water, is to be laid in the hole, and a strip of plaster laid over it, and it must be observed whether the remainder of the sac be thrown off by suppuration. If the suppuration be too weak, the charpie is to be first moistened with Laudan. Liquid. Sydenham., and afterwards with Unguentum Digestivum. If the bottom of the wound have now a clean red appearance, the charpie is to be entirely removed, so that it may heal.

If, in patients who are afraid of the knife, we be obliged to empty the contents of the tumour by a free cut in the skin, (a mere lancet puncture is not sufficient,) we must observe, at the first, whether the sac may not throw itself off by the subsequent suppuration, and whether it cannot be extracted by means of a forceps, either piecemeal or at once. If this cannot be done, on account of the thickness and firmness of the sac, let the escharotics now rendered ne-

cessary, be cautiously used, and observe generally in these encysted tumours, what surgery teaches of all such diseases, that there is in the vicinity a delicate and important organ which can very readily be injured.

Watery Vesicle, Phlictenula, Hydatis. Fatty Vesicle, or Millet-grain, Milium. Warts and Mulberry Fungi of the Eyelid.

When a small oblong part of the epidermis of an eyelid forms in a fine transparent insensible vesicle filled with water, it is called Phlictenula, Hydatis.

To CURE this trifling complaint, the vesicle is to be opened lengthwise, the cuticle at the edge of the eyelid is to be cut away with a proper pair of scissors, and the part is to be washed with some Saturnine water, with which some Laudanum may be mixed. In twenty-four hours the complaint will have disappeared.

Small white tumors like millet seeds, containing a suetty looking substance, are more commonly met with on the external surface of the eyelid than these watery vesicles. Opening them by means of a needle, and pressing out the contents sufficiently afterwards, is adequate to the cure.

The warts, verrucæ, which appear on the eyelids, especially of old people, not unfrequently also in children, are either provided with a pedicle or they sit firm upon the skin by a broad base. The former must be cut out with their root, or have merely a ligature tied around them, the latter should, according to Beer, much rather be let alone, and extirpated only when, in consequence of the use of escharotics, they have become painful and threaten to become malignant. In otherwise sound people, and when we go carefully to work, there is no reason to fear a malignant transition; on the contrary, we may extirpate these broad based warts in their commencement, or gradually destroy them without bad conse-

quences by means of Lapis Infern., Muriatic acid, &c. In cachectic and old people, on the other hand, we must proceed with these growths cautiously, for escharotics may increase the mournful examples which surgeons have recorded in many writings.

Malignant, very painful, and rapidly growing warts, surrounded by varicose blood-vessels, and commonly degenerating into cancer, (Akrochondon,) which Professor Beer always found associated with cancer or scirrhus of the breast or of the uterus, must always if possible be left untouched by the knife. The Pulvis Cosmii * must never be used in these cases.

Besides these, there are sometimes found on the eyelids some other excrescences, &c., as violet-coloured moles on the outer surface, and mulberry-like growths on the inner surface, against which various escharotic and other means have been recommended; among these the Lapis Infernalis is to be preferred, we can

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* A compound Arsenical Powder. *Translator.*

by means of it not only remove these growths, but often, even in moles, wash away every mark of their former existence. Even to myself it afforded speedy aid in two cases.

B.—OF

THE DISEASES

OF THE ORGANS WHICH ARE SITUATED BETWEEN THE ORBIT AND THE BULB.

OF PURE INFLAMMATION OF THE CAVITY OF THE ORBIT IN GENERAL.

In the same manner as an inflammatory state of all the textures of the eyelid was understood by the name of Inflammation of the Eyelid in General, so will the name of Inflammation of the Orbit in General, be applied to that inflammatory affection only, which has extended over all the textures which lie between the eyeball and the orbit.

Symptoms.—Obtuse, deep, and progressively increasing pain in the whole region of the orbit, combined with immobility of the eyeball,

difficult elevation and motion of the upper eyelid, and a feeling as if the eyeball were too large for the orbit, are the first symptoms of this inflammation. By degrees the eyeball projects from the orbit, Exophthalmus, the vision becomes always more and more impaired, and in a few hours the most complete amaurotic blindness, with manifest contraction of the pupil, perfect immobility of the iris, and great sensibility of the eyeball, often take place, accompanied with the disengagement of very painful flashes of light, Photopsia. Now at length the sclerotica, and then the conjunctiva, begin to redden, the iris becomes arched, changes its blue or grey colour into a greenish, or its brown into a dark red, the pupil closes, and the anterior chamber becomes always smaller, at the same time the pain has reached its acmé, and the patient becomes delirious and in danger, in consequence of the previous synocha, and the inflammation extending rapidly over the membranes of the brain.

With the commencement of the second

stage, the eyeball projects still more from the orbit, and the flashes of light increase, at least the patient speaks constantly of them in his delirium. If recollected for a moment, he complains of obtuse pain in the eye, accompanied with a sensation of coldness and great weight, and consequently he often creeps together, shivering with cold. At length there rises at the circumference of the eyeball, a red, soft swelling, which soon presents, in several places, pale points of matter and fluctuation between the eyeball and orbit. Upon this the eyelids, particularly the under one, becomes œdematous, and symptoms of suppurative fever take place. If only one point of matter appear, the eyeball is projected at this part, and the abscess does not implicate the whole circumference of the orbit.

This rare disease occurs most frequently, according to Beer, during the scrofulous, gouty, or syphilitic dyscrasis, and is then in fact not to be called pure. However, I saw a short time since, one case, in a menstruating sound

girl, where the inflammation was very pure. The orbit was lacerated by a small wound, a simultaneous fright caused a cessation of menstruation, from which, without any other cause, a very severe inflammation took place in the whole cavity of the orbit.

The prognosis in the first stage is very unfavourable, particularly when, from ignorance, the disease has been neglected at its commencement. If it have already established itself, it proceeds to a suppuration more or less dangerous to the life of the patient, and there is now no further treatment in regard to the vision, but only for the preservation of life and of the eye.

In the second stage, even a good form of the eye cannot be preserved, and regard is to be paid only to the saving of life, for if very suitable aid be not now given, the suppuration extends into the cavity of the cranium, bursts from the orbit, through an opening in the bone, into the cavity of the skull, or the

bones of the orbit suppurate slowly, and sooner or later the patient dies.

The CURE in the first stage is accomplished by a very severe general and topical antiphlogistic treatment.

In the second stage, when the hope of a resolution has already gone past, the suppuration must be promoted, as well by internal general means as by poultices, which must not be allowed to become cold. The Emp. Diachyl. comp. may be applied with benefit upon any one purulent point, with the poultice however over it, and this is to be continued until the fluctuation is quite evident, when immediately a free outlet for the matter must be procured by a large opening with a lancet, and the wound must be kept open by means of a tent moistened with Laudanum. In this manner the cure will be gradually accomplished.

Of Wounds of the Orbit.

When wounds of the orbit are deep and considerable, the prognosis for the most part will be bad, for often not only do loss of vision and of the eye follow, but even death. However, nature is often capable of more than the surgeon is aware of, on which account the prognosis must not be pronounced too hurriedly. The cured wound often leaves behind it an atony or complete palsy, laceration and incurable uselessness of one of the muscles of the eyeball, and a consequent oblique position of the eye, Luscitas; often transient or permanent amaurotic weakness of sight, or perfect amaurosis, from concussion of the eye, or laceration of its particular textures; often permanent prolapsus of the eye, Ophthalmoptosis, with amaurotic blindness, and so forth; often also there remains adhesion of most of the excretory ducts of the lachrymal gland, with unusual dryness of the eye, Xeromicter.

The rules of CURE are upon the whole the same as those given for severe wounds of the region of the eyebrows; nothing remains therefore to be considered here except the modifications from the particular parts wounded. If accordingly a prolapsus of the eyeball be present, let the pieces of the instrument which inflicted the wound, and which may remain in the orbit, be extracted. If infiltrations of blood in the cellular tissue between the orbit and eyeball be present, and press the latter from its natural position, let the wound be dilated so that the extravasation may be removed, when, the eyeball will immediately and spontaneously recede. If the surgeon be called too late, and the swelling produced by inflammation have pushed forward the eyeball, immediate replacement of the bulb cannot be thought of; the inflammatory and suppurative process must be waited for, and when the suppuration has been properly conducted, and the muscles of the eyeball have not been disorganized, the eyeball will spontaneously recede when the

suppuration has terminated. If the cause of the prolapsus consist in a want of cohesion of the muscles of the eyeball, the eye will be directed towards the side on which the existing muscles act most powerfully. Even here all artificial replacement of the eye is of no avail, the perfect cure of the wound must be waited for. * If this be properly conducted, the eyeball spontaneously recedes into the orbit during the suppuration, generally either entirely or in a great measure. If however, after the cicatrization of the wound, it still remain exterior to the orbit, the local means must be used which were recommended for blepharoplegia. If the wound shall have been so severe, that the eyeball hangs upon the cheek completely exterior to the orbit, if the eyeball itself be severely wounded, if the chambers of the eye be full of blood, if perfect blindness be present,

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* The application of some kind of suspensory is all that can be done here, otherwise the half-palsied muscles of the eyeball suffer still more in their cohesion from the weight of the depending eyeball.

then its replacement is of no use ; we must, in order to save the patient's life, immediately cut away the whole eyeball, with the torn cellular membrane attached to it. However, the eyeball, rendered blind by projection from the orbit, may have lain a long time, even nine weeks out of it, and yet the lost vision be restored, if the eyeball itself has remained uninjured.

Slighter consequences of severe wounds of the orbit, are on the contrary not always curable ; for example, when an oblique position of the eye, Luscitas, has succeeded in consequence of the laceration of a muscle of the eyeball, or when the excretory ducts of the lachrymal gland have adhered, from being surrounded with a callous cicatrix ; yet in the latter case, the remaining excretory ducts which have not become obliterated, gradually dilate, and cause the existing dryness of the eye to disappear.*

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* Professor Beer never saw a permanent, considerable dryness of the eye from such mechanical wounds, but has observed it from chemical wounds ; in the latter case the conjunctiva bulbi always became dry and rumpled, and the form of the eye and vision were destroyed.

a.—OF THE DISEASES OF THE LACHRYMAL GLAND.

Inflammation of the Lachrymal Gland, Dacryoadenitis, and of its consequences.

This inflammation, very often observed by Adam Schmidt, * but very seldom observed by Beer, Reil, and many others, commences always in the cellular substance which surrounds the lachrymal gland, penetrates afterwards into the cellular matter which invests the acini glandulæ lacrymalis, but never attacks the substance of the gland itself. From the near connexion of this cellular substance with the dura mater, with the periosteum of

* *Ueber die Krankheiten des Thränenorgans*, Wien. 1803, S. 134.

the orbit, with the many nerves and other delicate and important parts in the neighbourhood of the lachrymal gland, it becomes evident why this inflammation is to be accounted among the most dangerous.

Symptoms.—During a progressively increasing dryness of the eye, the patient is suddenly attacked with a fixed, oppressive, stinging pain in the region of the temple, extending over the eyeball, over the brow, and as far as the upper and lower jaw and occiput, and is felt as if it were behind the eye. The upper eyelid swells opposite to where the lachrymal gland has its seat in the orbit, becomes hard, dark red, tense, glistening, and extremely sensible. At the same time the conjunctiva reddens, and swells a little, for the most part however in the external canthus only; the eyeball being very hard, and highly sensible. Now also, the lachrymal gland enlarging, pushes forward the eyeball from the orbit at the external canthus, in such a way that the cornea is evidently thrown towards the nose. Along with the

projection of the eyeball the vision declines more and more, the pupil contracts, the iris becomes perfectly immoveable, frequent flashes of light are felt, and the mobility of the eyeball is gradually more and more limited. With an increase of pain there now supervenes synocha, with more or less delirium.

After the inflammation has reached its height, there take place, commonly in the course of from three to six days, along with an increase of photopsia, a greater jutting out of the eyeball towards the nose, pulsating pain, increased swelling of the upper eyelid, with a troublesome feeling of coldness and of weight in the eye, and lastly, a yellowish evidently suppurated point, in the conjunctiva of the eyeball, or on the external surface of the upper eyelid, accompanied with constant shivering.

The CAUSES of Dacryoadenitis are as yet in great obscurity. Schmidt says that, particularly young people from seven to nineteen years of age, sound in other respects, but who have had a previous appearance of scrofulous

dyscrasis, may be attacked with it. The disease was always brought on by sudden changes of temperature, or from a current of air. It seldom takes place as pure inflammation.

In regard to the PROGNOSIS in the inflammatory stage, when the disease is properly known and treated, it is not so unfavourable as that of inflammation of the orbit in general, but it accords with the prognosis of the latter disease, when it has extended to the whole orbit by bad treatment, &c. When the bulb has already projected from the orbit, resolution is no longer possible.

The prognosis in the suppurative stage is not very unfavourable, if the abscess be immediately opened, and an outlet procured to the matter, for after its evacuation, the eyeball retreats into the orbit, and even the vision often gradually returns, only the eye remains always for a longer or shorter time turned towards the nose, and an oblique position of the eye, Luscitas, also continues. If the suppuration however has extended over all the structures of the

orbit, the prognosis will accord with that of the second stage of inflammation of the orbit in general.

The CURE in the inflammatory stage must be always powerfully antiphlogistic. Let a bleeding therefore be ordered, and if amendment do not soon follow, let from five to six leeches be applied, make use also of cold poultices, and let a spare diet be recommended, make revulsion also by the intestinal canal when necessary, &c. &c.

As soon as the inflammation has advanced to suppuration, let it be promoted by warm poultices of Flor. Chamœn. et Herb. Cicutæ, mixed with other emollient medicines, and cover the swelling with a plaster of Emplast. Diachyl. et Cicutæ, so long as deep hardness is observed, and the eyeball has not receded into the orbit. In case of great pain and restlessness, give opium internally, and when the abscess is ripe, and the fluctuation sensible to the touch, open it with a lancet. After the matter has been discharged, a tent moistened

with Tinct. Opii, Ol. Amygdal., or Digestive Ointment, is to be laid into the opening, and to extend to the bottom of the ulcer, so as to irritate it. By degrees the wound is filled up, commencing at its bottom, and soon heals.

But the cure does not always go on so easily; for sometimes the matter which flows out changes into ichor, and a pale red, easily bleeding fungus sprouts out from the now callous opening, and announces the probable presence of a fistulous ulcer from caries of the orbital process of the frontal bone. If a probe be introduced, and it strike upon a rough and uneven part of the denuded bone, the presence of caries is certain. In this case let the whole opening be dilated with the knife, introduce tents covered with Ung. Digestiv. mixed with Pulv. Myrrh., promote in this way the exfoliation, and then heal the ulcer.

Besides caries, abscess of the lachrymal gland causes another consequence, namely, a fistulous ulcer without caries, arising from a wounded excretary duct of the lachrymal gland. In this

case, ichor and tears flow from the fistulous opening, or pure tears, fistula lachrymalis, or rather fistula of the lachrymal gland. Lastly, even when the ulcer has already healed, there sometimes remains a callous capillary opening in the upper eyelid, near to its temporal angle, from which a very clear lachrymal fluid oozes from time to time during the day. These minute openings from the lachrymal gland are very difficult to heal; hitherto they have been made to adhere best by touching the bottom of the wound with Lapis Infernalis, or with a red hot needle carefully introduced to the bottom of the callous opening, and turned round in it several times.

Scirrhus of the Lachrymal Gland. Scirrhus Glandulæ Lachrymalis.

An actual Scirrhus of the Lachrymal Gland (not a mere transient hardening, remaining after Dacryoadenitis) comes on, for the most

part, in conjunction with scirrhus of the neighbourhood, and even with Scirrhus Bulbi. This very rare disease is discoverable by the following appearances: The eyeball is pressed towards the internal canthus, also downwards and outwards from the cavity of the orbit; it is not painful, very little reddened, almost immoveable, and particularly cannot be turned towards the lachrymal gland. Along with these symptoms, a tumour is observed in the temporal angle, which is very firmly fixed, hard, uneven, and so long as the scirrhus has no disposition to cancer, insensible; the eyeball itself is very dry, the edges of the eyelids are crusted with half dried meibomian mucus, the cornea is more or less dim, and even cadaverous, if the disease has continued long. Moreover, it will be clear from the history, that an inflammation of the lachrymal gland has immediately preceded this disorganization.

Scrofulous people of a phlegmatic, insensible habit, are, according to Beer's experience, the most subject to this malady.

In regard to the prognosis, it is to be remarked, that the patient may bear this disease many years without inconvenience to the constitution. It is only when the induration has gone the length of carcinoma, that the prognosis becomes very bad.

There is no cure for a Scirrhus of the Lachrymal Gland. Beer rejects its extirpation.

Unnaturally increased secretion of tears from the Lachrymal Gland. Epiphora. Dacryorhysis. Flow of Tears.

Formerly, by flow of tears, was understood an overflow of tears from the eyes, the cause of which might consist in an increased action of the lachrymal gland, or in a diminished or interrupted excretion of the tears, though secreted in a natural quantity. The celebrated Ad. Schmidt first properly distinguished these states, and named the first Dacryorhysis, (Epiphora,) the other, in which the fault lies in the excret-

ing parts of the lachrymal organs, he called, Dacryostargon, Stillicidium lacrymarum, the trickling down of the tears.

The Dacryorhysis varies, and must be differently treated; at *one time* it is a forerunner and attendant symptom of almost all considerable pure inflammations of the eyes; this species goes off for the most part with the inflammation, and therefore does not require any further consideration.—A *second* kind of Dacryorhysis often remains after inflammation of the eyes, particularly in very irritable people, it may become chronic, becomes worse in wet weather, and on the other hand better in dry, warm weather. The cure of this Epiphora is accomplished by proper care of the irritable eye, by the application of warm, dry linen compresses, and when the general sensibility of the system is increased, by giving at the same time internal medicines, for example, at first Extract. Hyosciami, to blunt as it were the sensibility, afterwards tonics. Derivatives may be used externally, by the application of blisters and issues,

and locally an eye-water, with Sublimate and Opium, or Solut. Lap. Divin. c. Acet. Saturn. and Tinct. Opii Croc. may be applied, &c. The proportions of these must be regulated by the sensibility of the patient.—A *third species* of Epiphora is observed, in the first place, as an attendant phenomenon of scarlatina, of the measles and small pocks, in which case it for the most part, disappears with the eruption, and on that account, requires no further treatment; if, however, the flow of tears continue, and become chronic, the treatment corresponds with that of the former species of Dacryorhysis. In the second place, this third species of Epiphora occurs as a permanent symptom, in syphilitic, itched, scrofulous, gouty and scorbutic people, in which cases the above-named diseases discover themselves by their usual symptoms, along with a flow of tears.

The CURE in syphilitic and itched cases is accomplished internally, in the former disease, by mercury, in the latter by sulphur, and externally in both by an eye-water with sublimate,

or by the introduction, twice daily, of Ung. Citrin. into the internal canthus. The internal treatment in scrofulous Dacryorhysis is to be conducted according to the ordinary rules for the cure of scrofula. Topically, may be used, according to the sensibility of the patient, and of the eye in particular, either mere dry warmth, or when the patient is of a more torpid nature, the styptic medicines, already recommended, or red precipitate salve.

The cure of gouty Dacryorhysis, when the surgeon cannot remove the gout, is best effected by issues of long continuance, by which the diseased tendency of the lachrymal gland will be directed to another seat.

The Epiphora in scorbutic patients, which only occurs in the most indigent class of people, and in whom the tears are sometimes like flesh water, or are mixed with blood, will be best cured by an improvement in the manner of living, by a better habitation, and by proper exercise in fresh, pure air. Externally, styptic medicines in general, particu-

larly Decoct. Cort. Querc. cum Alum. produce good effects.

Obliteration of the Excretory Ducts of the Lachrymal Gland. Atresia ductuum excretoriorum Glandulæ Lacrymalis.

These obliterations often arise after wounds, or burns by fire or escharotics in the region of the Lachrymal Gland, and for the most part are of such a nature, that some of the excretory ducts still remain pervious. We are convinced of the presence of this disease by the patient's complaining of dryness, xerophthalmus, scheroma, and immobility of the eye, with the feeling of dust between the eyelids, also, there may be discovered, in the upper part of the external canthus, a cicatrix which often extends to the conjunctiva. However, the dryness of the bulb is not visible to the surgeon, for the eye has a bright, clear and moist appearance.

The PROGNOSIS is favourable, for by degrees

the excretory ducts which still remain pervious, dilate, and sufficiently moisten the eye.

As a palliative CURE, which is all that can be undertaken, various pure mucilaginous waters, for example, the mucilage of Saloop root or of Mallow root, the decoction of Mallows, Muc. gum. mimos, &c. with which the eye is to be often moistened, will be sufficient.

Encysted Lachrymal Swelling. Dacryops.

Symptoms.—If this encysted swelling, which quickly enlarges during weeping, be of considerable size, there appears in the upper eyelid, near to its temporal angle, an elastic, insensible, circumscribed swelling, perfectly resembling the skin in colour, and which, to the feel of the finger, must extend deep into the orbit. When it is considerably pressed, a feeling of weight on the eyeball itself is excited, producing the momentary sensation of sparks of fire. If the upper eyelid be lifted up, and at the

same time drawn out from the eyeball, and the swelling be pressed externally, then the conjunctiva projects in the form of a well-filled roundish bag, in which is distinctly perceived the fluctuation of the contained water.

The proximate cause of this disease exists, according to Schmidt, in the unnatural opening of an excreting duct of the lachrymal gland, in the cellular substance under the conjunctiva bulbi, in which many tears collect, distend the cells, and form as it were a sac. Schmidt and Beer, who describe this rare disease, saw it always in children, and the latter observed the swelling in two instances, as the consequence of a wound.

Although this swelling be not hurtful to the eye itself, yet it is very difficult to cure it radically, from want of perseverance in the patients, and the dangerous nature of its situation.

The CURE is effected in the following manner: After an assistant has raised the upper eyelid, and at the same time drawn it out from

the eyeball, and pressed the swelling from above downwards and forwards, the conjunctiva, which covers it, is to be divided with a scalpel, down to the sac which is always thin: it is then to be laid hold of, by means of a fine toothed forceps, and with the aid of an elastic knife, blunt and round at the point, it is to be turned out as far as it extends, rather by pressure than by cutting. When this is accomplished, a crooked needle, armed, with a thick, single silk thread, introduced by the wound, is to be thrust through the remaining part of the sac, the orbicularis muscle and the external coverings of the upper eyelid, so that it may pass out near to the edge of the upper eyelid at the external canthus, and form a real seton. If this, by being frequently drawn backwards and forwards, do not cause inflammation of the wound in twenty-four hours, it is to be streaked over at first with weak, afterwards with the strongest escharotics, for example, with Solut. Lap. Infernalis, Lapid. Caust., or with Butyr. Antimon. If the inflammation thus excited be

insufficient to cause adhesion of the sac, or to destroy it by the suppuration which follows, nothing more than a palliative cure is effected. The thread, which is to be frequently drawn backwards and forwards, is to be smeared often with Solut. Plumb. Acet., Tutia ointment, and so forth, to make the opening callous, so that the patient, when the thread has been removed, may as often as necessary empty the lachrymal tumour, which is constantly reappearing.—This encysted lachrymal swelling, furnished with an opening, is called by Schmidt Dacryops fistulosus.

Watery Vesicle of the Lachrymal Gland. Hydatis Glandulæ Lacrymalis. Glandula Lacrymalis hydatoidea.

This very rare and formidable disease, according to the description of the Observer, is of the following nature: A cell of the cellular

substance which connects the individual parts (Acini) of the Lachrymal Gland, distends into a vesicle, from the effusion of tears into it, which become acrid. At length it separates itself from the rest of the cellular membrane adhering to it, and thus forms an isolated Hydatid, lying among the Lachrymal Acini, which, by a slowly advancing growth pushes forward the eyeball from the orbit, either without exciting inflammation, exophthalmus, or if the increase be rapid, with inflammation of the eyeball, exophthalmia, and in such a manner that the eyeball is pressed towards the nose.

If this disease grow slowly, and appear with exophthalmos, it is known by the following symptoms. The patient complains of an obtuse, deep pain in the orbit, with the feeling of the ball being pressed out from behind, which is made particularly distinct by moving the eyeball towards the lachrymal gland. The slightly reddened eyeball now projects from the orbit in the direction de-

scribed, with tensive pain of the eye and of the whole half of the head; the eye becomes progressively dryer, at first moves with difficulty, and with the sensation of flashes of light being disengaged, at last it loses all power of motion. Hitherto, vision is present, but the patient sees the objects sometimes double, misshapen, or even for some moments does not see them at all. At length the sight becomes progressively more confused, and finally ceases entirely; the uninterrupted headache increases, the superior oblique muscle is, according to Schmidt, in continual spasmodic movement, (which however Beer never observed,) the eye acquires a dirty appearance, gradually grows more like the eye of a dead person, and indicates approaching death, even when the functions of life are yet going on well. A resisting hardness is now distinctly felt in the temporal angle betwixt the eyeball and the external edge of the socket.

When the disease appears with exophthalmia, it then shows itself by the following ap-

pearances. Under similar pains in the back part of the orbit, but seated more in the ball itself, the eyeball, inflamed and increasing in size, projects from the orbit, and is soon so much destroyed by supervening suppuration, that when not timeously opened, it bursts under the most violent pains, on which a mass consisting of bad matter and blood, flows from the opening. The eyeball does not in consequence sink together, but remains in the shape of an irregular mass of flesh external to the orbit. Even now the headach continues. Sleep and appetite are lost, and the parotid of the affected side becomes swollen. There is felt in the region of the lachrymal gland, as in the former case, a resisting, firm, and fluctuating hardness.

The peculiar cause of the Glandula lacrymalis hydatoidea, is hitherto undiscovered.

The PROGNOSIS is always uncertain. If the watery vesicle be already considerably formed, the prognosis is unfavourable. As soon as the eye is projected from the orbit, the vision lost,

and the eye has acquired a death-like appearance without the presence of exophthalmia, the patient sinks, under soporose, and finally apoplectic symptoms. When however exophthalmia is present, the eye, by long neglect of the disease, is not only lost, but even the bones of the orbit are gradually destroyed, and death follows slowly.

Cure.—As the disease, in its first stage, cannot be determinately known, nor the watery vesicle extirpated, on account of the important parts lying in its vicinity, for example the ophthalmic ganglion, the lachrymal gland, the external rectus muscle, &c., without certainly wounding these parts, it becomes necessary that the following operation be undertaken as a palliative cure. Under the upper eyelid, and near to its external commissure, plunge a small lancet, deep in the direction of the lachrymal gland, until the lachrymal fluid flows out of the vesicle, then introduce into the wound a fine bougie made of charpie, and smeared over with Saturnine water or salve, or a piece

of catgut, so as to form a fistulous opening, through which the fluid, afterwards collecting anew, can be frequently emptied. Afterwards it is sometimes even possible to extract the loose bag by means of forceps, through this opening. If the eyeball be already pushed out of the orbit, the vision gone, and the eye of a dirty appearance, death-like, or severely inflamed and consequently altered in texture, even this palliative practice will hardly do any good.

b.—OF THE DISEASES OF THE LACHRYMAL SAC.

Pure Inflammation of the Lachrymal Sac. Dacryocystitis.

Symptoms.—With the symptoms of a cold in the head, and a flow of irritating mucus from the nose, there forms in the region of the lachrymal sac, a bean-shaped, circumscribed, hard and sensible swelling, accompanied with obtuse pain extending to the nose and eyeball; at last it becomes much reddened, and cannot bear the slightest touch; at the same time stillicidium lacrymarum and dryness in the nostril, are present. The cheeks and other neighbouring parts, are now not unfrequently affected with erysipelatous inflammation, with which at

last, particularly in delicate people, general indisposition and fever are associated.

When *the second or blennorrhœal stage* has begun, such a quantity of mucus is formed in the lachrymal sac, that, as the nasal canal is often closed, the anterior part of the sac where not covered by bones, swells and gives a sense of fluctuation before suppuration has actually commenced. The mucous membrane of the nose and of the caruncula lachrymalis also secretes more mucus than usual. The issue of the disease is now on the point of being determined, for according to the intensity of the inflammatory symptoms, either the permeability of the nasal canal is again restored, and the mucous secretion becomes thinner, and continues for a long time, or, after the swelling of the lachrymal sac has increased, the redness of a darker colour, and the skin glistening, a yellowish-white suppurated point appears in the centre of the sac, along with more evident fluctuation, which must be immediately open-

ed, so as to prevent the formation of a real fistula of the sac. If the swelling be allowed to open spontaneously, it takes place by an external, very small, fistulous aperture, which does not permit the more consistent matter to flow out, on which account the swelling does not entirely disappear.

At last, by suitable treatment, this increased secretion ceases, and the lachrymal sac secretes mucus again, in proper quantity and quality. The opening of the sac heals either spontaneously or by the assistance of art, but for the most part only so far, as to leave a capillary opening, the treatment of which will be pointed out below.

Contusions at the internal canthus may, in otherwise sound subjects, produce a pure Dacryocystitis; it is however very rare; for the most part inflammatory affections of the lachrymal sac take their rise from scrofula, syphilis, gout, &c.

The PROGNOSIS in the inflammatory stage is favourable when the lachrymal sac has not

been much bruised or lacerated. If the inflammation cannot be fully resolved, there generally remains a diseased secretion of mucus, and an accumulation of it in the lachrymal sac, (Dacryops Blennoideus of Schmidt,) which however is soon cured by art. If, however, the previous inflammation have been very severe and neglected, there remains, for the most part, a partial or complete closure of the nasal canal; the canaliculi lachrymales also sometimes close, by which a permanent and incurable stillicidium lachrymarum is produced.

The prognosis in the second stage, in regard to the excreting parts, is very dubious; it is more favourable in the first part of this stage, when only pure mucus is secreted into the lachrymal sac, for in this state the surgeon may yet induce a favourable suppuration. When however the suppuration already exists, the prognosis is more favourable, provided the suppuration has been of short duration, it is more unfavourable when the sac is ready to burst, or when a fistulous opening is already present,

in which latter case, a permanent atony of the papillæ and canaliculi, or even a perfect destruction of them may be the result. If the surgeon heals the fistulous opening unguardedly, without paying attention to the closed nasal canal and the canaliculi, the mucus accumulates in the sac, for it constantly secretes, and a swelling arises resembling the skin in colour, and which Professor Beer calls Dropsy of the lachrymal sac, Hydrops sacci lacrymalis.

The CURE in the inflammatory stage is effected by poultices of cold water or oxycrat, and by frequently drawing cold water into the nostril. When necessary, leeches must be also applied, and the after-bleeding be prolonged.

In the second stage, when attempts at resolution no longer succeed, it is best to promote the suppuration by emollients, and as soon as the centre of the swelling becomes soft, and gives a sense of fluctuation, to open it with a lancet-shaped knife, fig. 2. If the hardness do not disappear entirely after

the evacuation of the matter and mucus, it is to be softened by poultices of cicuta and camphor, &c. At the same time, a little bit of charpie, moistened with laudanum, is to be introduced into the wound, and covered with Emp. Diach. comp. If the suppuration recede, and an unusual secretion of mucus remain, make use of the Solut. Lapid. Divin., which may be dropped into the inner canthus. If salves be necessary, let the tent, introduced into the wound, be smeared over with them once daily. If the secretion of mucus be again natural, the surgeon may now, for the first time, think of restoring the impeded passage of the tears through the nasal canal, after having previously satisfied himself of the permeability of the canaliculi lachrymales, or of the possiblity of opening them. If these excreting ducts be again actually in a state fit for use, then the surgeon may cure the wound, with the hope of having permanently removed the disease. If the surgeon has to do with a fistula of the lachrymal sac, which has a callous

aperture in the skin, the latter must be enlarged upwards and downwards, and charpie with Laudan. Liquid. laid deep into the wound, over this apply strips of diachylon plaster, and over all warm poultices of milk, Cicuta, and Saponaria, mixed with Camphor, until all callosities have disappeared.

The cure, in cases of obstruction of the canaliculi and of the nasal canal, will be further considered under Fistula lacrymalis.*

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* The Dacryocystitis has been here considered as a pure inflammation; it seldom however, as I have already said, occurs as such. The variolous, morbillous, scarlatinous, psoric, syphilitic, and scrofulous, &c. inflammations of the sac, are much more frequently met with; on which account, a few words may be said of the differences between these mixed inflammations of the lachrymal sac and the pure cases.

The Dacryocystitis arising from measles, scarlatina, and small pox, are not unfrequently observed, and must, so long as the phlogosis predominates, be very gently treated on antiphlogistic principles, because for the most part the disease occurs in very weak subjects; at the same time, baths and moderate warmth are useful. In this manner the inflammation cannot indeed be cut short, but yet the

suppuration may be often prevented. The inflammation in this case will often leave behind a tedious flow of lachrymal mucus, Dacryoblennorrhœa, Blennorrhœa sacci lacrymalis, which, as was already observed above, forms the limit between suppuration and resolution, and which sometimes disappears spontaneously in young women, at the first appearance of the menses, or during the first pregnancy, if not previously cured. In such cases of Blennorrhœa, the lachrymal sac must be often emptied by pressure, and the eye cleaned, so that the collection of mucus in the lachrymal sac may not cause a Hernia sacci lacrymalis.

In the syphilitic Dacryocystitis, mercury is indicated; externally the Ung. Hydrarg. Cin. has proved very useful. This species of inflammation of the lachrymal sac readily induces caries.

The psoric Dacryocystitis requires particular attention to the functions of the skin, and the use of sulphur-baths.

The arthritic Dacryocystitis, which often come on suddenly in the form of an erysipelas, and the scrofulous, which are of a much more chronic nature, and are more difficult of cure than the former, appear most frequently in women and girls, and when in very weak people, admit of a very unfavourable prognosis. For the cure of Scrofula, see Ophthalmia Scrofulosa.

Hernia of the Lachrymal Sac. Hernia Sacci Lacrymalis, and Dropsy of the Lachrymal Sac, Hydrops sacci Lacrymalis.

As both these diseases often arise from each other, they may be suitably considered in connexion.

Hernia of the Lachrymal Sac is known by a bean-shaped, insensible swelling, perfectly resembling the skin in colour, situated immediately under the internal canthus, from which, when pressed by the finger, a mucous fluid readily flows, either through the puncta lachrymalia, or through the nasal canal, (provided the puncta are closed by pressure with the point of the finger,) in consequence of which the tumour is emptied, but soon fills again. The disease consists in a relaxation and distension of the anterior wall of the lachrymal sac, and will be generally observed to be a consequence of a Dacryocystitis.

The PROGNOSIS in a case of mere Hernia, is very favourable.

The CURE is effected by the application of constant pressure, produced by graduated compresses, and a leather cushion laid over them, which, by means of a narrow uniting bandage, sufficiently press together the bean-shaped swelling; the effect of the pressure may be assisted by moistening the compresses with astringents.

On the other hand, the disease called Dropsy of the Lachrymal Sac, is known by a bean-shaped swelling in the nasal canthus, which becomes always larger, and at last discoloured, see Table I. fig. 6; it is elastic and insensible, its contents cannot be emptied either through the puncta lachrymalia, or through the nasal canal, and when it has attained the size of a pigeon's egg, and threatens to burst, it causes a continual pressure on the nose, on the region of the eyebrow, and on the eye itself.

That the disease originated from obstruction

of the canaliculi lacrymales, and of the nasal duct, may have been already discovered by the symptoms. As the lachrymal sac, obstructed both above and below, still continues to secrete mucus, it gradually fills, and appears, according as the disease has existed for a shorter or longer time, or according as the contents of the sac may be more or less fluid, in the form of a swelling, sometimes fluctuating, sometimes hard and immoveable.

The PROGNOSIS is always very dubious in such a case, for although the swelling can be always removed by the operation, it cannot yet be known whether the canaliculi and the nasal canal can afterwards be opened, and consequently, whether the tears can in future be conducted away or not.

In order to remove the tumour, it is to be opened with a lancet-shaped knife, the mucus present in it is to be pressed out, and the lachrymal sac well syringed with warm water, by means of an Anel's syringe, so that no mucus may remain behind. When the mucus, how-

ever, is very thick and tenacious, it is to be gradually extracted by means of a fine eye-forceps, and the firm mass adhering to the bottom of the lachrymal sac, is to be broken in pieces by means of a whalebone probe, and washed out with a syringe. A small tent, moistened with lukewarm water, is now to be laid into the wound, and pushed in as far as the sac, it is then to be fixed by a piece of court plaster of the shape of a half moon, and this dressing allowed to remain till the following day.

As the treatment which follows entirely corresponds with that of true

Fistula of the Lachrymal Sac, Fistula Sacci Lacrymalis,

which is nothing more than an ulcer of the mucous coat of the lachrymal sac, provided with a narrow callous opening, I may be allowed to consider the treatment of the lachrymal sac opened for Hydrops Sacci Lacrymalis, along

with the treatment of real Fistula Lacrymalis.

Above all things, it is necessary carefully to examine into the state of the puncta, the canaliculi, and the opening of the nasal canal. If, on examination with Anel's probe, a real closure of the canaliculi lacrymales be discovered, * in performing which the probe is introduced perpendicularly into the punctum and canaliculus, and carried quickly to the angle of the latter; † it is then to be pushed on in a horizontal direction in the *under eyelid*, and obliquely downwards in the *upper eyelid*, until it reach the lachrymal sac, during which process the canaliculi should be kept on the stretch by gently pulling the skin, so that the probe may meet with no obstruction. If

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* The papillæ lacrymales are very seldom obliterated, they are more frequently found contracted, and are then hardly discoverable by the eye of the examinator.

† Sometimes the canaliculus closes spasmodically and powerfully during this operation, by which the passing of the probe is prevented.

the internal wall of the lachrymal sac can now be distinctly felt, there is certainly no closure in the lachrymal canaliculi; if an obstruction actually exist, the probe cannot get thus far, on account of an invincible obstruction.

If the obstruction of the canaliculi be caused by relaxation, it is known by an unusual gaping of the puncta, and a total want of the contractile power which they always evince in a healthy state, when touched with the probe. An obstruction of the canaliculi by mucus, or a narrowing of them by swelling of their internal membrane, is discovered with the probe, and a finger possessed of a delicate sense of touch. If the permeability of the canaliculi has been restored, we may be soon convinced of their absorbing power having commenced properly, by dropping into the internal canthus two drops of a mild, coloured liquid, which will disappear here, but will come to be distinctly seen at the external opening of the lachrymal sac.

After being perfectly convinced of the per-

meability of the canaliculi, we at last proceed to the examination of the nasal canal. This is done in the following manner: A very fine whalebone probe is carried horizontally into the opened lachrymal sac, as far as its posterior wall, when the horizontal direction of the probe is to be changed to the perpendicular, and an attempt made to push it through the opening of the nasal canal, in doing which it is to be continually rolled between the fingers. If the probe do not reach into the nose, or the sac be found thickened or fungous, or even callous growths be detected in the mucous membrane of the nasal canal, preventing the whalebone probe from passing, it may be attempted with the silver probe of Mejean. If even this do not penetrate; if a permanent elastic obstruction be discovered with it, and the patient complain of no pain during the pressure of the probe on the resisting part, then the surgeon may be convinced of the presence of an actual obliteration of the nasal canal. If the probe on the other hand penetrate, though

not for several days, and with difficulty, it will still be possible to establish a permanent passage. *

If the probe has penetrated so far into the nasal canal as to remain fast, it may be allowed to continue till the next day, only it must be bound firm to the brow, and a tent laid alongside of it into the opening of the lachrymal sac, and covered with a piece of court plaster of a semilunar shape. Every day it will be possible to go deeper, and at last entirely through the nasal canal, into which when it is open, but not sufficiently so, is to be introduced an E violin-string, † somewhat pointed, and

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* The different methods which Anel, Mejean, La Forest, Cabani, Blizard, Wathen and others, have proposed to remove obstruction of the canaliculi and of the nasal canal, and for maintaining their permeability, have all their good qualities, but in the present state of science need not be treated of here.

† Catgut is better adapted to keep open and to dilate the nasal canal, than the leaden styles used by Richter, and similar means used and recommended by others.

smeared with almond oil, and it is to be pushed on, until six inches have been introduced, so that in some hours, when the gut in the nostril has become soft, it may be blown out from it without difficulty. The upper and still uncoiled extremity of the string, is to be bound fast down upon the brow, and the tent and half-moon-shaped plaster recommended above, during the introduction of the probe, is to be used as a dressing, and the portion of string lying out of the nostril is to be fastened with plaster upon the ala nasi.

This dressing is to be renewed daily, a portion of the uncoiled string is to be pushed through the nasal canal by the patient himself, whilst he draws out the nasal extremity of the string, and at the same time (provided cachexiæ have been removed, or do not exist) an injection, which may be suitable to the swollen or ulcerated state of the nasal canal, is to be made use of. Should the mucous coat of the nasal canal be only soft and swollen, of which the probe conveys information, then

smearing the string with Laudanum, and syringing with the Solut. Lap. Divin., or with Laudanum cum Aqua Saturnina, will be sufficient.

If, however, the internal surface of the lachrymal sac be hard and swollen, but not granular, then, at the commencement, weak salves of Red Precipitate, gradually increased in strength, and afterwards solutions of Sublimate, with Laudan. Liquid., made more and more strong, and used as an injection, are indicated.

When granular thickening of the lachrymal sac is present, recourse must be had to the use of the Ung. Citrin. Pharmac. Edinburg., and to the rubbing in of the Ung. Hyd. Ciner. around the opening of the lachrymal sac.

Along with the use of these means, the surgeon is gradually to proceed from the E string to the A string, and lastly to the D string, during which the state of the parts is to be occasionally explored with the syringe.

When caries is present in a fistula lachry-

malis, which is made known by livid, pasty, circumscribed spots, by soft fungi, black granular ichor, but most certainly by the probe, with which a rough denuded portion of bone is felt, then it must, when originating in cachectic diseases, be cured by the removal of the latter, and at the same time by the topical application of Asafœtida with Myrrh. If the cachexiæ, however, are not concerned in the caries, if it has rather originated in neglect, we may succeed with the same local applications.* If the caries has extended far into the lachrymal sac, then all hope is lost of its future utility, for in general the saccus lacrymalis will become wholly, or in a great measure obliterated.

If the swelling of the nasal canal be perfectly and permanently removed; (for which months are required,) if the warm water injected into the opening of the lachrymal sac, run readily

* Perforating the carious os unguis, as Richter recommends, is rejected by celebrated oculists.

and in a full stream from the nose; if no more mucus come from the opening on removing the tent, then we may heal with assurance the external opening in the sac. The lips of the wound are afterwards to be scarified, and brought together with court plaster, when the wound generally closes to a small capillary opening, which must be perfectly cured by touching it slightly with caustic.

Obliterations of the canaliculi, as also adhesions of a great part of the nasal canal, cannot be removed: on which account, the lachrymal sac must, in the first case, undergo complete obliteration by being artificially inflamed, in the latter case, however, the patient may make choice between the frequent emptying of the sac by pressure, or its perfect obliteration. If, however, the obstruction of the nasal canal exist in its lower part only, this part may be readily perforated with the hope of a happy result, by means of a sharp probe, the point of which is to be covered with a small ball of wax, to prevent its piercing any where too soon. A

few drops of blood flowing from the nose, will announce the actual perforation, after which the passage is to be gradually dilated by probes and catgut, as pointed out above.*

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* The accuracy in describing the diseases of the lachrymal passages, and of their arrangement, as also of the methods of curing them given in this work, will hardly be doubted, and I believe it would be well if British surgeons should act for the most part on the above principles. At the same time, I conceive it right to mention, that from experience in the treatment of a very great number of these cases, I can conscientiously affirm, that Ware's styles in general, however, thicker and longer than recommended by him, will answer almost every purpose to be obtained by the catgut. They should be kept of graduated sizes, and the passage be gradually dilated by them to its full size. They are much neater, and infinitely more easily managed than the gut.

I may also state, that though dilatation of the nasal canal by catgut, or by the style, be here recommended only in cases of fistula of the sac, or when the canal is nearly or entirely closed, I have often cured cases of troublesome blennorrhœa of the sac, without fistula or a great degree of obstruction of the nasal canal, by opening the sac and passing a style, when they had resisted methodical treatment by applications and medicines. The fact seems to be, that in most cases even of blennorrhœa, the top of the

nasal canal is more or less strictured, and aids in keeping up the morbid state of the sac, probably by preventing the tears from descending with their natural freedom. This degree of stricture is readily removed by the style, the mere mechanical action of which seems also to produce the most beneficial effects on the interior of the sac. Do we not daily see cures of morbid urethra and bladder, and of chronic discharges from them, by the daily, though but momentary passage of a sound or of a bougie, on principles very analagous to those of the action of the style in the lachrymal passages. As the operation of opening the lachrymal sac and passing down a style, in these cases, is exceedingly simple; as the wearing the style is attended with but little inconvenience; and as the operation does not, when properly performed, injure the functions of the sac permanently; why should patients persist in using medicines and applications for years, when the disease may be generally removed in a few months by a trivial operation. I have performed this operation with success in several cases even of scrofulous blennorrhœa of the sac, of years' duration. The trouble the patient often experiences in such cases, particularly in winter, from stillicidium lacrymarum, and from occasional painful attacks of inflammation of the sac, extending to the nasal side of the eyeball, readily induces him to accede to the operation, and two of my patients still prefer wearing the style for life, to the risk of a return of the evils they formerly experienced from the disease.

In three cases of fistula lacrymalis, with a large fungus sprouting from the opening in the sac, and at least

one of them, if not all of a scrofulous nature, I have seen the fungi disappear, and a perfect cure effected by the mere wearing of the style, without escharotics or any tenting of the wound. All of these people lived in the country, managed the styles themselves, and only showed themselves to me occasionally. From these cases, and the effects of the style in blennorrhœa sacci mentioned above, it would appear that the point of the greatest consequence in their treatment, is producing sufficient dilatation of the nasal duct. If this be obtained, if the injections and salves mentioned be at the same time occasionally applied, along with suitable constitutional treatment, a great majority of the diseases of the lachrymal sac and nasal canal, may be nearly or perfectly cured.

The Hernia Sacci Lach. is a disease, however, which cannot always be cured by the style or gut, and very few patients will submit to the inconvenience of pressure in the manner recommended above by Professor Beer. My disappointments in the treatment of this modification of the complaint will lead me to the trial of some new method. Is there reason to think that a free incision of the sac, even cutting across the round tendon of the orbicularis palpebrarum, which is attended with no bad consequence, and tenting the wound with escharotic dressings, until the sac contracts by inflammation to a natural size, as recommended by Scarpa in some cases of diseased sac, and dilating, at the same time, if necessary, the nasal canal, would be attended with success?—but on this point I cannot yet speak from experience. *Translator.*

C.—OF THE DISEASES OF THE CARUNCULA LACRYMALIS.

Pure Inflammation of the Caruncula Lacrymalis. Encanthis Inflammatoria.

In this disease the valvula semilunaris, and the caruncula lacrymalis, swell, become red, and are very painful, particularly in closing the eye; at the same time the absorption of the tears into the lachrymal sac is impeded, because the inflammation for the most part extends over the puncta lacrymalia, and over the whole conjunctiva.

When the inflammation resolves, much mucus will be separated from the caruncula for some time, during which the caruncula will return to its natural state. But if suppura-

tion take place, the redness and swelling of the caruncula increase, it becomes darker coloured, and there appears, mostly at its under part, a whitish-yellow point of matter, which soon opens, and sometimes forms the commencement of a complete distortion of the caruncula, rhyas. By neglect of the suppuration, spongy excrescences are apt to sprout from the suppurated surface, which may often become of large size.

The CAUSES of this inflammation consist chiefly in mechanical wounds of the caruncula.*

The PROGNOSIS is however very favourable, and the suppuration only sometimes, leaves behind it permanent disease; for example, a stil-

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* I have seen this disease in two instances, produced by a loose eyelash, the root or thick end of which had fairly entered the upper punctum and canaliculus. Its other extremity consequently pointed downwards to the caruncula, which it constantly irritated. The troublesome irritation which had been excited in both these instances, was immediately cured by removing the eyelash from the canaliculus. *Translator.*

licidium lacrymarum, a thorough suppuration of the caruncle, &c.

To CURE the disease, so long as there is no appearance of suppuration, cold water must be diligently applied, after having previously removed the foreign bodies which may probably adhere to, and remain in, the wounded caruncle.

Suppuration already established is to be carefully treated with desiccative medicines, and the diseased spot is to be streaked over with Laudan. Liquid., particularly when there is a disposition to spongy excrescences. If the fungous growths are not removed by this, which is seldom the case, the following powder, which is to be sprinkled upon them, may be used with advantage:

℞. Sach. Alb. ʒii.
Alumin. Usti. gr. xv.
Vitriol. Alb. gr. iv. M.

If the inflammation has been neglected; or if it be not pure, or occur in cachectic people; then a swelling of the caruncle gradually in-

creasing in size, (Purinam saw it the size of a fist,) is not unfrequently observed; it acquires a whitish, ash-colour, and extends often in the form of a swallow-tail, as far as the cornea, and partially prevents vision. The best way of curing this fungous swelling is to extirpate it. Poultices of cold water applied afterwards, will diminish the inflammation which follows, and in the end the use of gently astringent means will permanently remove the disease.

Encanthides which are not of an inflammatory kind, and appear in the form of a mulberry, are to be cured in the same manner when large, or if they appear as a growth from the caruncula, and have a small base, they may be removed by the ligature. If however they are small and trifling, the local application of drying and astringent means will often succeed.

If inflammations of the caruncula which are not pure, continue for a length of time and be neglected, particularly after scrofulous oph-

thalmia, combined with syphilis, there takes place, in very rare instances, a

Scirrhus and Cancer of the Caruncula Lacrymalis. Encanthis Scirrhosa, et Carcinomatosa, aut Maligna,

the former of which is known by a very hard, uneven, pale red, and insensible swelling, which occasions a continued stillicidum lacrymarum. When cancer approaches, there is also a troublesome stillicidium lacrymarum, and the caruncula is hard, but has a bluish-red appearance, and is very painful; a scirrhous state of the caruncula has also preceded. In open cancer the swollen caruncula is attacked by a very painful, fungous ulcer, which bleeds readily, and has hard everted edges; from which an offensive ichor flows, quickly corroding the puncta and other neighbouring parts, and by producing peribrosis may readily cause an ectropium of the lower eyelid.

The PROGNOSIS and CURE correspond entirely with these of scirrhus and cancer of the eyelid.

Of Encysted Tumours of the Orbit.

Dacryops, and Hydatis Gland. Lacrym. not only occur in the cellular substance which surrounds the eyeball, but also, though seldom, real encysted tumours, which contain a compact, fattish, or puriform mass.* These encysted tumours have their seat sometimes deeper, sometimes more superficially in the orbit, generally under the eyeball, † seldom at its side,

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* Scarpa.

† St. Yves has already remarked that they are chiefly situated here. Many English cases are also related, in which this was the seat of the swelling.

Within the last twelve months I have extirpated two large tumours from the orbit. The first was in a young girl. The tumour was on the upper and outer side of the orbit. In order to get at it, I was obliged to cut across,

and accordingly, during the increasing growth of the tumour, it presses the eyeball so much

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perpendicularly, the whole breadth of the upper eyelid, and dissect back the two flaps. The tumour was nearly the size of a plum, and reached as far back as the eyeball. It was slightly encysted, perfectly organized, and of anomalous texture. The healing of the wound was rapid, and, contrary to my expectation, the eyelid reunited perfectly, and regained very nearly its natural power and extent of motion. The eyeball did so also, and the vision was perfect. This girl went to England some months after, and I was concerned to learn from the surgeon under whose care she was, that the tumour had begun to grow again.

The second case was in a young adult woman. The disease was of two years' standing before I was consulted, and had produced hideous exophthalmos. It was found impracticable to extirpate the tumour without also removing the eyeball, which was accordingly done. The tumour exceeded the size of the eyeball, lay directly behind it, and so completely encircled the optic nerve that the latter was diminished one half in thickness by the pressure of the tumour. The vision had been rapidly declining previous to the operation. This tumour was exceedingly hard, of anomalous texture, and surrounded by a layer of condensed cellular substance. The anterior aspect of the tumour touched and pressed upon the posterior aspect of

outwards and upwards, that it acquires a peculiar appearance; the tears run constantly over the cheek, and aversion to light, with pain in the eye, and in the whole head takes place, during the returns of inflammation of the eyeball.

The CURE of this rare disease can only be accomplished by extirpation of the sac. On this account the under eyelid is to be made tense, the skin and the orbicularis in the direction of its fibres, are to be divided by a bistoury with a convex edge, the sac is then to be laid hold of with a suitable hook, drawn as much out from the orbit as possible, and then carefully extirpated.

If the eyeball do not soon replace itself after

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the eyeball, but had no connexion with it except through the medium of the optic nerve and of the cellular substance. This young woman has continued well for twenty months, and is in perfect health. Dr. Monteath, Senior, and my friend Mr. Rainy of this city, witnessed and assisted me in these operations. *Translator.*

the extirpation of the tumour, Scarpa applies graduated compresses by means of a bandage, and thus, by moderate pressure, retains it in its proper position.

Of Aneurisms in the Orbit.

From the few cases which have as yet been observed, and which Scarpa partially quotes, it appears that before Aneurisms have formed in the orbit, they are almost always preceded by pains in the eye and in the head. By degrees a pulsation begins, which becomes more and more sensible; there is as it were a feeling of rushing and thrilling on touching the eye. The headaches consequently become more frequent, humming in the ears takes place, and the eye itself is sometimes much pressed out from the orbit. All the usual ophthalmic medicines are here of no avail; the application of cold water alone, often brings relief. Compressing the carotid of the affected side,

diminishes the humming in the ear, and the sense of pulsation in the eye. Ligature of the carotid of the affected side, is, as far as it is yet known, the best method of effecting a cure.

II.—OF

THE DISEASES

OF THE EYEBALL.

OF WOUNDS OF THE EYEBALL.

EVERY considerable wound of the eyeball requires in general much circumspection in regard to its cure and prognosis.

The following is particularly to be observed in regard to the individual structures wounded.

When the conjunctiva is any way tense, the lacerated, is to be changed into an incised wound, remove at the same time all remnants of the wounding instrument, wash the eye when there is no extravasation under the conjunctiva, with a mucilaginous lukewarm eye-water, but if extravasation of blood exist, with

a vinous eye-water, * after having previously removed as much of the blood as possible through an incision, provided the extravasation has been considerable. In order to promote the absorbing process, Aq. Ammoniæ may be mixed with the above eye-waters. If fungi should form, in consequence of splinters remaining behind, they are to be cut off with the scissors, the splinter is to be removed, and the spot to be often touched with Laudan. Liquid. to destroy completely the remaining parts of the growth.

In lacerated wounds of the cornea, we must be guarded in our PROGNOSIS, on account of the concussion and bruising of the eye which may be connected with it. These wounds may be met with, either penetrating or non-penetrating. If in such wounds the inflammation and suppuration be not prevented, or

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* A more suitable phlogosis may be excited by a mixture of Brandy and Aqua Menthæ, or by the vapour of Æther rubbed in the hand, &c.

if a thin ichorous suppuration take place, a more or less visible cicatrix remains, which impedes vision when it forms in the centre of the cornea. On this account, the patient must be treated as after extraction of the cataract, and the wound healed by the first intention. Even when the wound is quickly healed, there often remains a visible cicatrix, which however soon disappears in young subjects, and in those who have strong powers of reproduction. In old people, in whom this power is much weaker, it must be supported by the best possible means, and this is accomplished particularly by a solution of the Lapis. Divin. with Laudan. Liquid. Sydenham. Pure incised and small punctured wounds are cured by rest of the eyeball and of the eyelid, generally within forty-eight hours, and even perforation of the cornea with a common fork, often leaves no mark.

If in perforating wounds of the cornea, the iris fall forward between the lips of the wound, let the eyelid be closed and rubbed with the finger, and then allow a very bright light to

fall suddenly into the opened eye. If the iris be not immediately brought back into its position in this way, then, according to Ware, the aqueous humour may be allowed to flow out of the eye, and, according to Gibson, the little bag which the iris forms in the opening of the cornea, may even be opened for this purpose, so that the aqueous humour which is behind the iris, and which presses it towards the cornea, may not prevent the starting back of the iris; on emptying the Aq. humour, both surgeons have often observed the iris recede to its natural position.* If the iris still remain in the wound of the cornea, these two membranes unite, and form a staphyloma iridis, or permanent prolapsus of the iris.

If the iris has been wounded as well as the cornea, the wound, which in these cases is generally hazardous, often suppurates, or leaves

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* *Siehe Dr. Günthers Brief in der Biblioth. für Ophthalmologie, Kenntniss und Behandlung der Sinne überhaupt in ihrem gesunden und kranken Zustande, von Himly,* 1816. Erst. B. I. St. Seit. 52.

behind it a complete or incomplete obliteration of the pupil. If a portion of the torn iris fall forwards into the wound of the cornea, the projecting part must be immediately cut off with the scissors, after which the iris generally retracts of itself, and its adhesion with the cornea, Synechia anterior, is thus prevented.

A mere concussion of the eye without wound, inflicted by a push with a blunt instrument, often tears the iris from its ciliary connexion, and produces either a double pupil,* or the natural pupil closes, and the newly formed one remains. If both pupils remain open, double vision, Diplopia, is not unfrequently the consequence.

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* Such detachments of the iris from its ciliary connexion, and a permanent pupil arising in consequence, first gave the idea to Scarpa and to Ad. Schmidt, of forming similar pupils artificially, and thus was invented the third known method of forming artificial pupils, viz. the Corodialysis.

In cases of wounds penetrating the sclerotica and the corpus ciliare, effusions of blood into the chambers of the eye very often take place. These must be removed whenever they are considerable, by an incision in the under part of the cornea, and if considerable bruising be also present, spirituous eye-waters are likewise to be carefully used, so as at the same time to promote the absorbing process. Portions of the corpus ciliare hanging out of the wound, must be cut off with the scissors.

If the wound has penetrated into the lens, the prognosis is seldom favourable, for generally a cataract gradually forms. If the lens, in consequence of the wound, has passed forward into the anterior chamber, and if it be hard, (as it generally is in old people,) it must be considered as a foreign body, and extracted by an incision in the cornea, after which the inflammation will quickly subside.

Wounds accompanied with loss of the vitreous humour, are commonly not so unfavourable when they have happened during extraction, as

when they have arisen accidentally, for example, by the goring of a cow's horn, because in the latter case, the power with which the wound has been inflicted is generally very great. Complete evacuation of the vitreous humour often produces loss of sight.

When the retina protrudes through a wound of the sclerotica and choroidea, loss of vision, with dilated pupil, is the consequence. In like manner, an incurable amaurotic blindness comes on if the retina itself be wounded. In these wounds, as also in those of the larger ciliary nerves, a severe vomiting always ensues, which, when not removed, must naturally increase the inflammation of the eye. When saburræ in the intestinal canal keep up the vomiting, it will be cured by evacuants; if the vomiting however be purely nervous, then mild opiates, either internally, or, when they cannot be borne internally, given in glysters of Chamomile Decoction, are useful. Wounds of the ciliary nerves may be discovered externally by a characteristic appearance:

the iris, namely, for the most part (but not always) retracts so much towards the edge of the cornea, that its colours can scarcely be any longer discovered.

So much for mechanical wounds of the eye.*

In regard to chemical wounds of this organ, they require much greater caution as to the

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* The following case may be mentioned from its singularity. The unfortunate patient consulted me three years ago, at which time I caused a drawing to be taken of both his eyes. On attempting to separate two men who were fighting, he received a blow from the fist of one of the combatants, on one of his eyes. The force was so great that the eyeball was burst, and the vision instantly destroyed. On another occasion, he was standing near a man and woman who were quarrelling. The woman, in a violent gust of passion, turned round suddenly, and unintentionally struck the sound eye of this ill-fated man with the point of her elbow. This eye was burst also, and the vision ruined. It is worthy of remark, that both eyes burst a line from the cornea, on the nasal aspect of the eyeball. When I examined him, the pupils were distorted, and drawn towards the rupture, and a capsular cataract existed in both eyes. The retina being insensible, no operation was recommended. *Translator.*

prognosis and cure, than mechanical wounds, because the former always induce more or less loss of substance. So long, however, as they are slight, their prognosis and cure are favourable. Rest of the eye, along with mucilaginous lukewarm fomentations or washes, are all that are here required for the cure. If the cornea itself has received a chemical wound, for example, in consequence of the spattering of hot fluids, a vesicle rises, which becomes gradually whiter, bursts, or disappears without bursting, the cuticle wrinkles, becomes snow-white, throws itself off, and the cornea regains its former transparency. The surgeon must not in this case open the vesicle, or disturb the process of reproduction.

Should the eyes have suffered more extensively by chemical influences, and considerable portions of their conjunctival covering be loosened, the latter must be considered as dead bodies, and cut away. When from similar causes, as for example, burns from concentrated mineral acids, &c. the conjunctiva of the eyelids has

also suffered, the powers of reproduction must be quickly promoted, so that the disorganized parts may be speedily thrown off, and the surfaces of the wounds soon cured; this is effected by gently astringent, drying medicines, as a salve of Cacao butter, or Butter with Tutia or Litharge. In such wounds of their internal membrane, the eyelids must be often moved, so as to prevent an adhesion of either of them with the eyeball or with each other, in consequence of their lying long in contact with each other.

If the chemical injury to the eye has been very great, as from unslaked lime, mineral acids, &c.; if cavities have been produced in the cornea, which may be observed by viewing the eye in profile, a snow-white cicatrix will generally remain in consequence. In such a case, as in less severe injuries of the texture of this organ, above all things, remove the wounding cause, prepare for dropping in, mucilaginous eye-waters, and always prevent the above-mentioned adhesion of the eyelids.

Still worse than the above injuries, are those which have been produced by a flame, striking the eye, or by a coup de soleil, for the quicker and the more numerously blisters form on the conjunctiva, the more the eyeball in general, and the iris in particular, lose all mobility, the more the pupil contracts, the more severe the pain becomes, in the whole eyeball and in the region of the eye, so much the more rapidly does a general inflammation of the eye show itself. In this case the surgeon must do every thing to diminish the inflammation, although often, notwithstanding every effort, he is scarcely able to maintain the form of the eye, much less to restore the lost vision.

A.—OF

THE DISEASES

OF THE TRANSPARENT PARTS OF THE EYEBALL.

a.—OF THE DISEASES OF THE CONJUNCTIVA.

Pure Inflammation of the Conjunctiva of the Sclerotica and of the Cornea. Conjunctivitis.

INFLAMMATION of the conjunctiva of the eyeball commences generally very rapidly in that part of it called Conjunctiva Scleroticæ, by a dark-red network of vessels, (see Tab. I. fig. 7,) which vessels are readily distinguished by their considerable size, from the very fine and deeper-lying vessels of the inflamed sclerotica,*

* To distinguish more readily an inflammation of the Sclerotica, sclerotitis, from a Conjunctivitis, what fol-

and which are easily pushed in all directions by the movements of the eyelid, but hardly change their position from motion of the eyeball itself. If the inflammation of the conjunctiva scleroticæ now extend to the conjunctiva corneæ, the latter becomes dim, either in part, or over its whole surface, according to the severity of the inflammation; it is raised a very little; has a greyish-white colour, resembling dim, ground glass, and at last assumes a greyish-white redness, which soon ends in distinct, red vessels, running in nearly a straight direction.* This inflammation is attended with little pain.

The CAUSES of the disease are, particularly, small bodies, &c. falling into the eye.

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lows is to be observed. In sclerotitis, the appearances of disease are of greater intensity, but of less extent than in conjunctivitis; the inflamed vessels in the sclerotica form slower than those in the conjunctiva, and differ in their direction from the vessels of the latter. The blood-vessels of the sclerotica, follow all the movements of the eyeball, but take no part in the isolated motions of the conjunctivæ.

* Wardrop.

The CURE is the same as described under Taraxis, in Pure external Inflammation of the Eyeball.

The Thick Film of the Eye. Pannus.

This disease consists in the conjunctiva of the sclerotica and cornea being interwoven with small and large blood-vessels, between which a grey whitish-red dimness is observed, (see Tab. I. fig. 8.) When the Pannus is considerable, the network of blood-vessels appears so thick, that the limits between the sclerotica and cornea can hardly be distinguished, while the iris and pupil are still more indistinctly seen.

The irritation which a trichiasis or entropium produces upon the conjunctiva, is very often the cause of this chronic network of blood-vessels. The seat of the disease, however, often lies in a scrofulous, catarrhal, rheumatic inflammation, &c.

The PROGNOSIS is very favourable when the

disease is early, and properly treated. If the pannus however be very old, and habitual, the cornea often remains somewhat dim, even after the best possible treatment. The pannus which arises from trichiasis and entropium, cures generally spontaneously when these diseases are removed.

The plan of CURE varies; for if the pannus be of short duration and inflammatory, leeches may be applied, and emollient poultices may be made use of. If on the other hand the pannus be of long standing, and if cachectic diseases which have produced the affection have been removed, or never existed, then the introduction, once or twice daily, of Laudan. Liquid. mixed, in obstinate cases, with Balsam Vit. Hoffm. or Æther, is very serviceable. If the disease do not yield, then powders, such as are used for specks of the cornea * and scarifications,

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* For example, ℞. Sachar. Alb. part. vi.
Alum. Crud. part. i. M. ft. Pulv.
Of this a little is to be introduced into the eye, two or three times daily.

or rather the partial excision of the trunks of the largest vessels running towards the cornea, are of the greatest use.* Issues also by caustic, blisters, &c. are often used with effect.

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* In place of cutting out portions of the individual vessels, I generally, in obstinate cases of this disease, cut out a portion of the conjunctiva, from a line to a line and a half in breadth, all around the edge of the cornea. This operation is performed by a small pair of eye scissors, and a fine pair of forceps, and must be done slowly and deliberately. So early as the second day after this operation, nearly two lines of the edge of the cornea will have already become transparent; the clearing goes on progressively from the circumference to the centre. The latter part may not regain its transparency for weeks or months, owing to the greater density of all the tissues at the centre of the cornea. This operation will not effect a cure, if the patient be at the time in a state of scrofulous dyscrasis or fever, it often rather does harm. In such cases, the grand object, is improving the general health, for unless this be effected, the scrofulous pannus may last for years. Many eyes affected with scrofulous pannus are destroyed, by being continually teazed and irritated by local applications, which would have recovered completely, had the Physician or Surgeon not disturbed the eyes, and turned the whole of his attention to the improvement of the general health. *Translator.*

The Winged Film. Pterygium.

Pterygium is a triangular thickened fold of the conjunctiva, unaccompanied by pain, the basis of which, for the most part, takes its origin from the nasal angle of the eye, and is connected with the membrana semilunaris. It may be raised up from the sclerotica without pain, by means of forceps; and its point is always directed towards the cornea.

These pterygia are either very thin, half-transparent, greyish, and furnished with few blood-vessels, and in this state form what is called the Pterygium Tenue, or they are thick, leather or flesh like, * even cartilaginous, furnished with many blood-vessels, and are then called Pterygia Crassa. See Tab. I. fig. 9.

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* Sometimes they are not unlike small muscles, so that they even give the appearance of having sinewy attachments.—See *Schmidt, in der Ophthalm. Bibliotheck.* 2. B. I. St. S. 57.

The above characteristic phenomena do not apply in all cases of Pterygia, for sometimes the basis does not arise from the internal, but from the external canthus, nay, in rare cases, pterygia sometimes arise from the internal and external canthus, from above and below at the same time, their points all tending towards the centre of the cornea, destroy the sight entirely, and exhibit what Scarpa believes to have been the pannus of the ancients. The pterygium is not always connected with the membrana semilunaris, and does not in every case extend over the edge of the cornea.

The CAUSES which may induce a pterygium, are not always easily discovered. For the most part, sand falling into the eye, or particles of lime or stone, give occasion to the disease; on which account, it occurs most frequently in labourers. Old people are more subject to the disease than the young, it is sometimes however met with in children, and Wardrop saw it once in a child

immediately after birth.* The pterygium is not to be considered as a disease consequent upon ophthalmia, though a previous ophthalmia may sometimes leave a disposition to it.

The PROGNOSIS is always favourable. Ware, often brought the CURE of pterygium, when thin, recent, and not yet extended over the cornea, to a favourable issue, by the external use of powdered Sugar and Alum, mentioned under pannus. If at the same time, the pterygium, previously raised with small forceps, be repeatedly cut across, its disappearance will be considerably promoted.

When the pterygium has passed over the

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* I have lately seen a large pterygium in a delicate child of four months of age. It was situated under the upper eyelid below the supra-orbitary foramen. The mother could assign no cause for this disease, and the eye was in other respects healthy.

Within these few days I also removed a large pterygium from the very same situation, in an adult woman. Its base reached as far back as the reflection of the conjunctiva. *Translator.*

cornea, or when it is thick, it is most safely and quickly cured by the knife. To accomplish this little operation, after an assistant has drawn the eyelids as much as possible from each other, and the operator laid hold of the pterygium at its basis, and raised it from the sclerotica by means of the small forceps, fig. 1, it is then to be completely cut across at its base with a sharp scalpel, and carefully removed with David's scissors, so that as little of it as possible remain behind, particularly on the conjunctiva corneæ. When the bleeding has ceased, a dry linen compress is to be hung over the eye operated upon, and according to Scarpa, the eye may be also sometimes washed with decoction of Mallows, and such like. On the fifth or sixth day, the little wound is covered with a puriloid substance, and it is healed between the eighth and twelfth day. If large portions of the pterygium remain upon the eye, suppuration of these parts must be kept up by smearing them with Laudan. Liquid. Syd. until the remnants have thrown themselves off.

Finally, if small points of the pterygium still remain upon the cornea after the suppuration, they will certainly yield to the gradual use of the means recommended for specks of the cornea.

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*The Fatty Film, Pinguecula.**

A small, flat, dirty, yellow swelling, lying immediately under the conjunctiva, mostly observed in the external canthus, seldom exceeding in size the circumference of a small lentil, see Tab. I. fig. 6, and never met with in very young people, is called Pinguecula. It very

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* The mere external fatty appearance of this little swelling has been the occasion of this name being given to it by surgeons; for, a Pinguecula which occurred to me not long since, or rather two of them lying near to each other, which I removed by an operation, and then subjected to a chemical analysis, did not enable me to discover in them the least fat; they rather contained a substance resembling a mixture of Albumen and Jelly.

seldom encroaches upon the cornea, and never goes so far as to interfere with vision.

No cause has yet been found out, except a relaxed constitution of the patient.

The disease may remain during life without increasing, and, but for the deformity it causes, is of no consequence. On this account, the surgeon has in general nothing to do in such a case. If, however, the removal of the Pinguecula be determined upon, it may be attempted in the same way as specks of the cornea are, by means of scarifications of the little swelling. The safest method of CURE is, careful removal with the knife.

Fleshy, Fatty Fungus, and Papula of the Conjunctiva.

Fleshy excrescences of considerable size, have sometimes been observed on the conjunctiva, from birth; such cases however are rare. For the most part they appear in scrofulous or sy-

philitic people, are seated sometimes on the limits between the cornea and sclerotica, and in very rare cases, particularly when the swelling contains fat, they produce hairs of considerable length. *

The careful extirpation with the knife, of such growths, and the subsequent application of astringent or gently escharotic means, or of Laudan. Liquid., gives the most certain hope of CURE, only the cachectic diseases from which the malady originated, must be at the same time attended to. If such swellings or fungi occur in the form of fleshy little warts, carunculæ, epanastemata, their cure may be effected without the knife.

Papula of the conjunctiva, which almost always has its seat between the conjunctiva of the under eyelid and the plicula semilunaris, not far from the lower punctum, is a roundish,

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* *Himly,* 2. B. I. St. S. 199.—*Wardrop's Essays on the Morbid Anatomy,* p. 86. By the latter, and by Demours, such cases are very beautifully painted.

pretty hard, pale red and itchy, little swelling, of the size of a pin-head, which Professor Beer * has only met with in girls whose menses either did not flow at all, or flowed irregularly or scantily. If menstruation be duly promoted, and return, the little swelling disappears. If on the other hand, the patient rubs it often, it becomes larger, acquires the size of a pea in the course of three days, and must then be laid hold of with a hook, and cut out with a scalpel. If the menstruation continue irregular, the disease may recur, yea, even a carcinomatous exophthalmia may take place, when the papula has been treated by escharotics, particularly in cachectic people.

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* *Lehre der Augenkr.* 2. B. S. 679.

b.—OF THE DISEASES OF THE CORNEA.

Pure Inflammation of the Cornea. Corneitis, Keratitis.

At first the cornea is somewhat dim, and has a dull, muddy appearance; by degrees it acquires a reddish glitter, and, when the inflammation becomes still higher, contains visible vessels; at the same time, considerable pains of the eye are commonly present. When the inflammation has commenced from the sclerotica, the vessels in the cornea seldom appear distinctly; they are generally so fine that they can scarcely be seen with the bare eye; but if the inflammation has advanced from the conjunctiva scleroticæ to the conjunctiva corneæ, then the vessels have usually a much greater

size, and run almost straight; this latter kind of inflammation belongs to conjunctivitis, under which it has been already treated of.

The CAUSES of this inflammation are almost always mechanical, and correspond as well as the CURE, with those of Pure inflammation of the Conjunctiva.*

Opacities and Specks of the Cornea. Obscurationes et Maculæ Corneæ.

By Opacity of the Cornea, is understood a dimness, extended over the whole, or almost the

* Wardrop, who treats of Corneitis very particularly, distinguishes still another variety of it, viz. of the innermost layer of the cornea, Tunica humoris Aquei. This variety is recognized by the uneven, cloudy dimness, the seat of which is not easily determined, and by the feel of over-fulness in the eye, by which the cornea appears to be semewhat prominent. He cures this inflammation very quickly by emptying the aqueous humour.

The English now employ the evacuation of the Aqueous humour, by means of a needle, very commonly, in inflammation of the eye.

whole cornea; by Speck, is understood only partial opacity of this texture.

Of opacities and specks, there are several progressive distinctions depending on different causes, which shall be explained here as shortly, but as distinctly as possible.

1. A smoke-like, greyish speck, with edges that are shaded off, or an opacity, is called Nephelium, Nebula, Nubecula.

2. When the speck appears of a more saturated white, as if cloudy, and the muddiness more accumulated in the cornea, it is called Achlys, Ægis.

3. If the specks appear of a still more saturated white, if the lamellæ of the cornea have lost their natural transparency, and have in consequence of the cause, (generally previous inflammation,) become changed into an enamel-looking state, and if the opaque substance have been organized into a pseudo-membrane, then the morbidly changed part is often chalky-white, or glistening, like mother-of-pearl, more or less raised above the cornea, hard to the

touch, and yet somewhat shaded off at its white edge, and is called Leucoma. Of this class there are three species, according to the degree of the opacity, viz. 1st, mere Leucomatous opacity, Obscuratio Leucomatosa; 2d, Albugo, Paralampsis, or Leucoma Cretaceum; and 3d, The pearly speck, Macula Margaritacea, which forms the highest degree of Leucomatous disorganization.

4. When the cellular substance between the layers of the cornea, has been destroyed by ulcers, &c. and the lamellæ have adhered directly with each other, and become as opaque as a leucoma, the appearance is called by Schmidt and Beer, Cicatrix, (see Tab. II. fig. 1.) which has much resemblance to the leucoma, but appears at its edge as if accurately cut or defined. It is glistening, very white, of various forms, comes on frequently in conjunction with synechia anterior, and may have, along with a defined border, a muddy or even a leucomatous circumference.

5. Specks are often met with, which in fact

are nothing else but dried abscesses of the cornea; these are made manifest by their yellowish colour, which is divided as it were into little islands, by greyish-white interspaces, and also by a projection of the cornea, especially when the dried matter has its seat between the conjunctiva cornea and the lamellæ of the cornea which lie underneath. Not unfrequently a partial anterior synechia accompanies these specks.

6. A mistiness, which has its seat only in the circumference of the cornea, and comes on very slowly, without an appearance of inflammation, has been described under the name of Arcus Senilis, Gerontoxon, Macula Arcuata. This dimness occurs almost exclusively in old people, and appears to be the same process which changes the arteries, cartilages, &c. of old people into a bony matter. Perfect ossification of the cornea has sometimes been found in old people. This, so called Arcus Senilis, however, is not unfrequently met with even in young people (see Tab. I. fig. 7.)

Mohrenheim * saw it in a new-born infant, Sybel † met with it in a man thirty-two years of age, and Wardrop ‡ observed it in several periods of life. However, such opacities are not injurious, at least the best Surgeons have never observed them to injure the eye.

7. Lastly, pieces of bone have sometimes been observed in the cornea, § and may be treated of under specks of the cornea, but under none of the previous species. I shall only remark concerning them, that sometimes (when they include the centre of the cornea, and have their position immediately under the conjunctiva corneæ) the operation of turning them

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* *Dissert. Inaugural. d. quibusd. materiæ et formæ oculi, aberrationibus a statu normali.* Halæ, 1799.—*Auch in Reils Archiv. für die Physiologie,* 5. B. I. Heft.

† *Dessen Beobachtungen,* 1 Thl. S. 9.

‡ *Essays on the Morbid Anat. of the Human Eye,* p. 86.

§ *Wardrop,* p. 72, also *Walter Anatom. Museum,* I. Bd. S. 139, &c.

out* might be used with good effect; this operation was formerly too much recommended by Callisen, &c. in other kinds of specks.

A previous inflammation of the cornea may almost always be traced as the cause of speck, whether it may have proceeded from other structures of the eye, or originated in the cornea (for example, from splinters of iron, &c. in the cornea). If the inflammation do not resolve itself sufficiently, the fine vessels pour out an opaque lymph, to which they have always a disposition in inflammatory affections of the cornea, so that specks and opacities readily result. That a Macula Arcuata may be congenital, has been stated already, and that a leucomatous opacity of the whole cornea, except a square-shaped spot in its middle, which continued transparent, may also not only be congenital, but even hereditary, has been observed by Kieser.†

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* Which Wardrop has performed with success.

† *Himly and Schmidt Ophthalm.* B. 3. B. 3. Stuck. S. 79.

The PROGNOSIS varies, according to the different kinds of specks. It is favourable in young, robust people, in whom the change of matter as yet goes on rapidly, when only a slight opacity or macula is present, and when it exists on the surface of the cornea.* In such a case the disease soon yields by perseverance in the use of means. In old hectic subjects, on the other hand, the disease often continues for a long time. Patience is above all things necessary, for often, after the continued use of medicines for months, no diminution of the speck has been observed, yet at length it will yield to the applications.

The prognosis in a leucoma is more uncertain and unfavourable, for if it be already of long standing, it has penetrated to the deepest lamellæ of the cornea, and if it be also very thick, and

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* Much depends on the more or less superficial seat of the speck, for even a very slight speck, seated in the most interior lamellæ of the cornea, will not yield to even persevering and powerful practice.

the patient old and debilitated, the speck will resist every plan of cure. In a leucoma existing in a young, strong subject, the prognosis is more favourable, for there are many examples of such leucomata being cured, only the cure is very tedious, even of years' duration.

Cicatrices of the cornea cannot be cured, but their circumferences may be removed, when more or less opaque.

Dried abscesses of the cornea, when they do not contain too much dried matter, are easily cured.

If, along with specks, varicosity of the eye be present, the prognosis is very unfavourable, for the eye must not be touched.

The CURE is accomplished commonly by local medicines only, however, cases are not unfrequent in which even internal medicines become necessary. Care must therefore be taken to moderate the cachexiæ, and dispositions to frequent returns of ophthalmia. Sometimes the absorption of matter must be promoted, and for this purpose, Boerhave formerly employed

Calomel. In like manner, Antimonials, Arnica, Extr. Pulsatill. Nig. &c., have been recommended.

The topical treatment, however, is always the most important and the most useful, according to the general experience of medical men.

There is almost no disease for which so many external means have been recommended, as for specks of the cornea. The reason probably, is not only the frequent obstinacy and incurability of the disease, but also the want of perseverance of the Patient and Surgeon in the necessary plan of cure; a person proceeds from one medicine to another, because he has lost confidence in the first, by means of which the disease does not disappear sufficiently rapidly. However, a frequent change of the applications, and their gradual increase of strength, are very favourable, and necessary to the cure.

I shall endeavour to mention the medicines of decided efficacy.

They may be all properly divided into two classes, of which the first contains the

emollients and resolvents, the second the stimulants. This division is important; for as in recent, soft specks, stimulants are indicated from the commencement, and as in hard, old, very opaque opacities and specks, the use of resolvents is first required, and then the application of stimulants, so there is a general division of specks into these two classes, which has great influence in practice.

We may conclude that a speck is of soft consistence when it is dark-grey, dull, not glistening, shaded off at its edge, and furnished with fine blood-vessels running towards it. If these characters be not present, the specks are of harder consistence, and must be first treated with emollient, and afterwards with stimulant medicines.

Dried abscesses and chalk-like specks, which after a change of resolvent medicines, do not alter their appearance and consistence, must be scarified superficially, and then the use of the same means must be resumed.

Among the emollient, resolvent medicines, the following may be enumerated: the Axungia

Viperina, Oleum Ovorum, Medull. Ossium Recens, Oleum. Nuc. Iugland. Liquamen Hepatis Mustellæ Fluviatilis, Decoct. Malvæ, Fel. Tauri, Ext. Cicutæ, Ext. Chelidon. Maj. Ext. Taraxaci, Aloes. Kali Carbonicum,* Natron Carbonicum, Borax, &c.

Among the class of stimulant applications may be enumerated, Rancid Oils, Sal. Volat. Corn. Cervi, Alumen, Zincum Sulphuricum, Baryt. Muriat. Natrum Muriat., Laudan. Liquid. Syd. Mercurius, particularly Merc. Precip. Ruber, mixed into a salve, Butyr. Antimonii, (which, however, in case it should be diluted, can only be mixed with Muriatic Acid, as every other diluent decomposes it,) Potassa Fusa, Lap. Infernal. † Pulvis Sachari, Vitr. Subtiliss. Pulverisat. Limatur. Stanni, &c. &c. &c.

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* ℞. Kali Carbon. gr. ii.
Aq. Distill. ʒi. M. solvendo.
Some drops to be poured into the eye, five or six times daily.

† One or two grains to half an ounce of water; the same proportion of Potassa Fusa is proper.

So far with regard to simple means. From among the most particular and most powerful compounds which have been celebrated by ancient and modern Surgeons, I shall only select the following:

℞. Sal. Volat. C. C. gr. v.
Fell. Taur. Inspiss. ʒi.
Extr. Chelidon. ʒii. M.

To be streaked on the eye by means of a pencil.

℞. Sal. Corn. Cervi. gr. xii.
Fell. Taur. ʒi.
Mell. Despum. ʒiii. M.

The specks to be streaked over with it, several times daily. *Richter.*

℞. Fell. Taur.
Extract. Cicut.
——— Cort. Peruvian, ℈ii. M.

Reil recommends this particularly, in specks after scrofulous ophthalmiæ.

℞. Liq. Ammon. Caust. gtt. x.
Olei Nuc. Iugland. ℥ss. M.

To be streaked on the speck with a pencil, the quantity of the Liq. Amm. to be increased in

proportion to the diminution of the irritability of the eye. *Graefe.*

℞. Aq. Rosar. ℥ii.
Sacchar. Alb.
Boracis Venet. a ʒss.
Ext. Aloes. Aquos.
—— Opii, a. gr. vi. M. exact.
Beer.

℞. Merc. Sublim. Corr. gr. i.
Opii Colat. gr. viii. solve in.
Aq. Ros. ℥ii.
Beer.

℞. Liquam. Hep. Must. Fluv. ʒi.
Butyr. Recent. Insuls. ℥ss.
Merc. Prec. Rub. gr. xv.
Vitriol. Alb. gr. vi. M. exact. ft. Ung.
Beer.

℞. Butyr. Vaccini Insuls. ʒii.
Merc. Precip. Rub. gr. xv.
Tutiæ. Præp. gr. vi. M. exact. ft. Ung.

A small quantity to be introduced into the eye once daily, by means of a pencil. *Beer.*

When a speck is nourished by blood-vessels, which in such cases often run in bundles, it will be proper to elevate the vessels gently, and cut out a portion of them; the communication of the blood-vessels with the speck will be thus

intercepted, and the speck, now robbed of its support, will more readily yield to the usual means.

Conical Projection of the Cornea.

This rare disease of the cornea, and which has of late first come into notice, consists in a sugar-loaf-shape projection of this membrane, proceeding very slowly, and occurring without inflammation, Tab. II. fig. 2 and 3. The apex is commonly thickened, sometimes becomes opaque, and always forms the central point of the cornea. In this state it resembles, when viewed laterally, a hard crystal, but when viewed in front, it has a sparkling appearance,* and thereby prevents the proper view of the iris and of the pupil. These changes of the shape of the cornea, produce not only short-sightedness, but also such a morbid refraction of the

* Wardrop, p. 114.

rays of light, that even near objects appear confused and imperfect,* yea, at last even large objects are not visible to the patient at a distance of from three to four feet. This disease is generally observed in young people, yet even old people are attacked by it. The conical projection of the cornea may however remain stationary, in a slight degree, for many years, without becoming opaque at its apex. The disease comes on sometimes in one eye only, sometimes in both at the same time. †

Although the disease is rare, yet many oculists have seen it often, and both Demours ‡ the father, and son, can enumerate more than one hundred cases which they have observed.

The CAUSES are as yet very little known. In one case by Rowley, the disease commenced in

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* Ware, p. 61.

† *Scarpa, Traité sur les Maladies des Yeux.*
I have seen two brothers affected with this disease in both eyes. *Translator.*

‡ *Demours,* tom. i. p. 316.

a woman, during severe crying in difficult labour.

The plan of CURE is at present very unsatisfactory. The aqueous humour has been emptied, (Ware,) and compression afterwards made use of without effect; the Infus. Herbæ Nicotianæ, poured by drops several times daily into the eye, has been used with more advantage. In order to remove the great short-sightedness attending this affection, the lens has been depressed,* as in the common operation for cataract, and with happy effect; this practice, however, is very uncertain, and in many cases inapplicable. The whole disease, moreover, appears to be nothing else than a dropsy of the aqueous humour in which the cornea, probably from a congenital thinness of its centre, cannot resist the pressure of the accumulating fluid. However, it is worthy of remark, that the

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* *W. Adams, in dem Archiv. für Medicinische Erfahrung, &c. Heraus gegeben von Prof. Horn, Nasse und Henke,* B. 2. S. 191.

observers of this disease have never found medicines directed against dropsy of the aqueous humour, efficacious in removing this affection.

Hernia of the Cornea, Hernia Corneæ. Ceratocele.

When an ulcer of the cornea has penetrated to its innermost lamella, it sometimes happens, that whilst the ulcer still remains open, or after it has healed, this internal lamella becomes projected outwards in the shape of a greyish, half-transparent, watery vesicle, and forms what is called a Hernia of the Cornea. Wounds of the cornea also, and ulcers which have actually gone through it, may (when the most internal or external lamellæ are sooner regenerated than the rest, and pressed outwards) cause Hernia of the Cornea.

The PROGNOSIS is various: when the ceratocele is small, and no opening has as yet appeared in it, a cicatrix of more or less size will

remain, but the prognosis is here, nevertheless, very favourable.

If the hernia, however, has been large, and burst, the iris almost always applies itself in the opening, the pupil becomes thereby distorted and contracted, and the vision greatly weakened.

To CURE this disease, astringent means must be introduced into the eye, for example, a strong solution of the Lapis Divinus, at the same time Laudan. Liquid. alone, or mixed with Bals. Vitæ Hoffm. must be streaked on the hernial tumour. In like manner, escharotics, for example the Lapis Infernalis, have been used with success. The latter is also to be used when the iris comes to lie in the hernial sac, by which practice, however, synechia anterior is not prevented, but rather promoted. *

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* When the prolapsus of the iris has first arisen, we may attempt reducing it to its natural situation, by the methods directed under wounds of the cornea.

C.—OF THE DISEASES OF THE CRYSTALLINE LENS.

Inflammation of the Crystalline Lens, and of its Capsule, Lentitis.

Pure Lentitis, particularly if arising from external causes, is, so far as observation has hitherto gone, always combined with inflammation of the other structures lying in the vicinity of the lens. The iris is hence almost always inflamed in this disease, and the pupil perceptibly or imperceptibly distorted or contracted.

Impure Lentitis, which is the most common kind, arises slowly, runs for the most part a chronic course, and also appears without iritis.

It announces itself for the most part by some aversion to light, and slight cloudy dimness of vision, at the same time, many vessels swelled

with blood, are seen in the pupil, after it has been dilated by means of Extract of Belladona; of these the largest only are visible with the naked eye. With a lens, magnifying about six times, a fine wreath of vessels may be observed in the anterior capsule, running concentric with the round pupil; if this zone be observed more carefully, it will be seen that it consists of several arches of vessels, to which many others from the periphery of the anterior capsule or iris run in a radiated manner. In the lens itself, to which no blood-vessels run in the natural state, a similar zone of vessels is not unfrequently observed, which often receives vessels from behind. Between these blood-vessels of the capsule and of the lens, there is found, as in corneitis, effused coagulated lymph, which still more impedes vision. The pains are slight, and are not observed in the middle of the eye, but rather in the bottom of the orbit, and in the supra-orbitary region.

I have introduced in this place, the Diagnosis of Lentitis, (on which disease the renowned Ph.

Walther first increased our knowledge,) as an introduction to Cataract, which is to be immediately considered, because, I believe with many, that a very great number of cataracts arise from an inflammation of the lens and of its capsule, and hence this disease must merit above all things the observation of medical men.

Cataract. Cataracta, Hypochyma, Suffusio Oculi.

Every dimness of the lens or of its capsule, or of both structures at the same time, by which the rays of light are more or less impeded in their passage to the retina, is called a Cataract.

Sometimes a commencing cataract is confounded with a commencing amaurosis. To prevent this mistake, it is necessary to observe the following symptoms of cataract and of amaurosis.

The characteristic phenomena which usually

attend a gradually forming cataract, are the following: The objects appear to the patient enveloped in a cloud, dirty and dusty. The decrease of sight exists in an exact ratio with the dimness visible behind the pupil. Generally the dimness is first seen in the centre, seldom at the edge of the pupil. When the cataract is more formed, a blackish ring shows itself around the edge of the pupil, which is the shadow of the iris upon the lens, now rendered visible from its opacity. When the cataract commences in the middle of the lens, it obscures the objects placed immediately opposite to the eye, the patient, however, knows objects placed to one side, hence it happens that such patients can see better in the shade, when the pupil is dilated, than in bright day, when it is much contracted. So long as the dimness of the lens is inconsiderable, convex glasses afford the best palliative aid. The patient sees the flame of a candle enveloped in a whitish cloud, and, if the cataract be already far advanced, he no longer sees the flame, but merely the glare

around it. The iris is moveable in commencing cataract.

The characteristic appearances indicating the developement of amaurosis are the following: the opacity lies much deeper in the eye than can possibly be seated in the lens, hence it appears concave, on more minute examination. The colour of the opacity verges more to a greenish or reddish, than grey. The patient is often almost blind, though the dimness be inconsiderable. The pupil is dilated, the iris slightly or not at all moveable, and the edge of the pupil sometimes more, sometimes less angular; the cornea is dull, and the eye has lost its brightness when the amaurosis is of a paralytic nature. The alternate increase and diminution of sight, do not in such a case depend upon the dilatation or contraction of the pupil, but on those causes which invigorate or debilitate the whole frame. The contour of the flame of a candle appears coloured like the rainbow, to those affected with commencing amaurosis. The patient also

distinguishes objects as imperfectly towards the side as those placed exactly before him. *

OF THE SPECIES AND VARIETIES OF CATARACT.

The Lenticular Cataract, Cataracta Lenticularis, commences in the centre of the lens with a yellowish, grey colour, which shades itself off towards the edge. At the same time, the shadow of the edge of the pupil is observed in the form of a blackish ring, the pupil dilating and contracting as usual. This cataract commonly lies considerably distant from the uvea, and cloudy, bright-white specks are never observed in it. Tab. II. fig. 4.

The Capsular Cataract, Cataracta Capsularis v. Membranacea, seldom commences from the middle of the pupil, but rather from its

* I have seen so many cases of commencing amaurosis, where the patients saw better to one side than in front, that I now put no faith in this symptom as a Diagnostic one of cataract. *Translator.*

edge, in an indefinite form, sometimes in glistening white points or stripes, like those of Spermaceti, sometimes in specks. This cataract is always coloured very bright, but never equally.* It never continues for any time alone, but ends, for the most part, in Capsulo Lenticular Cataract.

There are three varieties of the Capsular Cataract.

a.—The Anterior Capsular Cataract, when the anterior half only of the capsule is rendered opaque, *Cataracta Capsularis Anterior.* Specks and stripes of a bright-grey, chalky-white, or mother-of-pearl appearance, are observed in this case in the anterior capsule, which becomes thickened, sometimes fills up the posterior chamber of the eye, consequently impedes

* The glistening, white parts like Spermaceti, in the pupil of the 6th fig. of Tab. II., dying away towards the centre, will be immediately recognized as the opaque anterior capsule.

the mobility of the iris, and prevents the appearance of the well-known shadow. The vision at the same time is not only injured, but actually reduced to a limited sense of light, whether the patient may be in well-lighted, or in half-dark places. As a concomitant of anterior capsular cataract, we may consider the *Cataracta Dendritica, arborescens*, or, according to Richter, (*Dessen Chirurg.* 3 Bd. S. 174.) Cataract of the Choroid Coat, *Cataracta Charoidalis.* Brownish, arborescent figures, on the anterior capsule of the lens, which may either have become opaque, or continued transparent, are known by this name. There is still uncertainty in regard to the nature of this cataract. Some ancient oculists considered the brownish branchings, as prolongations of the choroid coat. Others, and among them Beer, consider them as the impression of the tapetum of the uvea upon the capsule of the lens. Others again believe, that these arborescent opacities are in the substance of the capsule itself, or imagine that merely the blood-vessels

of the inflamed capsule of the lens have been described under the name of Cataracta arborescens.

b.—The Posterior Capsular Cataract, Cataracta Capsularis Posterior, when only the posterior half of the capsule of the lens is opaque, may be recognized, on proper examination, by a muddiness, accompanied with specks and stripes, which appear concave, greyish-white, and irregular, but are never of a chalky-white, by the mobility of the iris continuing even after the lens has become opaque, and by the sight being less impaired.

c.—The complete Capsular Cataract, Cataracta Capsularis perfecta, agrees in appearance with the anterior capsular cataract, only that in this case the posterior chamber of the eye, is entirely destroyed by the thickening of the capsule, the pupil is almost immoveable, even the iris sometimes appears arched, on account of the pressure of the cataract.

The Cataract of Morgagni, Cataracta Morgagniana, consists in a muddiness of the humor Morgagni, caused by sudden, particularly chemical influences upon the eye, (for example, by exposure to the vapour of concentrated mineral acids, &c.) and is one of the rarest species. Soon after this, there follows a perfect change of the lens into a milk-like fluid, and not unfrequently, at the same time, a perfect capsular cataract; hence this cataract is seldom found existing alone.* Its colour is milk-white, soft and delicate, the whole pupil appears cloudy, but the clouds change their form every time the eyeball is rubbed with the finger, or is quickly or smartly moved; the posterior chamber is nearly or completely filled up, and the sight more or less limited. See Tab. II. fig. 5.

The Capsulo-lenticular Cataract, Cataracta

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* The lens must always, in this case, soon become cataractous, because it is nourished by the Humor Morgagni.

Capsulo-lenticularis, is by no means the most rare. Its symptoms are the following: the colour of the opacity, where it is close to the iris, is partly chalky-white, partly like mother-of-pearl, and in many parts these two colours are seen stratified upon each other, in such a way that the pearl-coloured lies always above the chalky-white layer. The iris is almost immoveable, but the pupil is round. This bulky cataract presses the iris towards the cornea, for which reason, the patient's perception of light is very imperfect. Tab. II. fig. 6.

The following are the varieties of Capsulo-lenticular Cataracts.

a.—A Capsulo-lenticular Cataract, which is accompanied with the formation of new substance in the anterior capsule. It obtains different names, according to the different forms which the new structure assumes; hence there is a *Cataracta Capsulo-lenticularis Marmoracea, Finestrata, Stellata, Centralis, Punctata, et Demidiata.* In all these slight

varieties, and in most others of capsulo-lenticular cataract yet to be treated of, the substance of the lens, with the exception of its nucleus, becomes gelatinous or milk-like.

b.—The Encysted Cataract, Cataracta Capsulo-lenticularis Cystica, is characterized by its snow-white colour, it lies sometimes near to, sometimes at a greater distance from the iris, according to the situation of the patient's head; when the head, for example, is inclined forwards, the cataract strikes upon the iris, and appears as if it would enter the pupil. This variety of capsulo-lenticular cataract often appears tremulous, *Cataracta Capsulo-lenticularis Tremula,* or swimming, *Cataracta Capsulo-lenticularis Natatilis.* The cause of this appearance depends on the connexions of the capsule of the lens with the neighbouring parts, having been either weakened or entirely destroyed.

c.—The Pyramidal Capsulo-lenticular Cataract, Cataracta Cap.-lent. Pyramidata, is al-

ways the effect of a violent inflammation of the eyeball, and is distinguished from others, particularly by a white, almost glistening, pyramidal-shaped growth, projecting through the pupil, and taking its rise from the centre of the anterior capsule of the lens, and which, on account of its adhesion with the edge of the pupil, renders the iris quite immoveable, and the pupil angular. The sense of light is, as a natural consequence, very weak, or entirely wanting.

d.—The Dry-hulled Capsulo-lenticular Cataract, *Cat. Cap.-lent. arida Siliquata*, occurs especially in very young children, who have suffered much from convulsions, particularly of the muscles of the eyes, by which the capsule of the lens has been partially loosened from its connexions, and must now, along with its lens, in consequence of deficient nourishment, become shrivelled; this cataract consists, therefore, in a drying of the nucleus of the lens, along with a drying and crumpling of the capsule. It may be known in children, by its

bright, grey-white colour, by its small size, its considerable distance from the iris, by the free motions of the iris, (when it does not adhere to it in some points,) and lastly, by the sight being never entirely destroyed. See Tab. II. fig. 7. The same phenomena are sometimes observed in the adult, the cataract, however, is always of a dazzling white, only here and there of a dirty white, inclining somewhat to yellow; it is also flattened, and the sight commonly reduced to a mere sense of light.

e.—A fifth, and very rare variety of capsulo-lenticular cataract, is that accompanied with a purulent sac, *Cataracta Capsulo-lenticularis, cum bursa ichorem continente.* It is known by having a duskish, orange colour, by very sluggish movements of the iris, by a readily discovered want of the posterior chamber, by the slight arching forward of the iris, by a very indistinct perception of light, and lastly, by an evidently debilitated and cachectic habit of constitution. The bag of matter, which in this

kind of cataract, is almost always found between the lens and the posterior part of the capsule, contains sometimes a very fetid ichor.

f.—The Barred Cataract, Cataracta Cap.-lent. Trabecularis, sive cum Zona, is known by the following marks: A formed, anterior capsulo-lenticular cataract is distinctly seen behind the pupil, which has become contracted and angular, and upon the cataract there is attached a chalk-white, glistening, and often pretty thick bar, which has a more or less perpendicular or horizontal direction, adheres by both ends to the pupillary edge of the uvea, and renders the iris motionless. On this account, the perception of light is indistinct or entirely wanting, and the eyeball itself is not unfrequently atrophic.

So far with regard to the species and varieties of Cataract; we now proceed to those differences, depending upon the consistence of the lens and capsule.

The consistence of Cataract has not only great influence on the prognosis, but also on the choice of the kind of operation; on which account, the following division is very important to the operating Surgeon. A *hard Cataract* has the following appearances: it is of a darkish colour,* and lies at a distance from the pupil; the sight is only limited, not lost, and the patient, when the pupil is dilated, observes large objects pretty distinctly, at the same time the motions of the iris are very lively. These hard cataracts occur for the most part in old people, and only in the lens.—To the class of *firm, tough cataracts*, many of the capsular class belong; for example, the encysted cataract, the

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* Sometimes the cataractous lens is met with of a very dark colour. Jannin, for example, describes, in his *Observations on the Eye*, two black lenticular cataracts, which, when held opposite to the light, appeared reddish; they were very hard, yet very large. The cataracts had existed long, and were met with in aged people. Wenzel, the father, has also observed perfectly black cataracts.

pyramidal capsulo-lenticular cataract, the dry-hulled cap.-lent. cat., the barred cataract, &c.— Sometimes the cataract is *soft, that is, cheesy or gelatinous,* either throughout its substance, or only on its surface; this species has always a bright grey, or greyish-white, or a sea-green colour, unequally distributed, and in this kind the sight is often totally lost, the posterior chamber filled up, and the motions of the iris rendered sluggish. There are also *actually fluid Cataracts,* which, however, on account of opacity of the capsule almost always accompanying them, are very difficult to be discovered. When the capsule is not perfectly, but only in some parts opaque, the following symptoms are observed. The cataract lies upon the uvea, if the patient bends his head forwards, and the lens pushes the iris towards the cornea. The sense of light is distinct. When the patient holds his head quiet for a long time, the cataract clearly shows a thicker sediment below, and a thinner stratum above. There are also *fluid-hard Cataracts,* among which may be

reckoned, the cataracta Morgagniana, and the cataracta cum bursa ichorem continente.

The distinction of Cataract into ripe and unripe, *Cataracta matura et immatura*, is also important in practice. The grey cataract is ripe as soon as it is incapable of farther increase, whether it have entirely destroyed the sight or merely limited it, whether it fill the pupil or not; an unripe, grey cataract, again, is that which admits of increase. *

A still more important classification of this disease, is that into a purely local, and a complicated cataract, *Cataracta topica pura, et Cat.*

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* This division might be still more important, if in the strict sense, that state of the lens were called Cataracta matura, in which previously existing lentitis had now subsided, and left behind no aversion to light. In such cases, so long as an inflammatory state of the lens is present, the cataract, though perfectly opaque, would be perfectly unripe for operation; for who will touch a lens still in a state of inflammation, without dreading such a subsequent inflammation of the parts surrounding it, as may be destructive to the organ of vision?

complicata, of which the first species is rare; the second is subdivided into *locally* complicated, *constitutionally* complicated, and *perfectly* complicated cataracts.

To *locally* complicated cataracts belong, in the first place, the adherent cataract, Cataracta acreta, the diagnosis of which has already been pointed out. The cataract may be still farther locally complicated with contraction of the pupil, without synechia posterior, with atrophy and with hydrophthalmia, with cirsophthalmia, with specks and cicatrices of the cornea, with pterygium, and with different ophthalmiæ. When the cataract is complicated with glaucoma, it has almost always a greenish or sea-green colour, is exceedingly large, so as to project itself from the pupil towards the cornea, the colour of the iris is changed, as it is after iritis, the pupil dilated and angular, the blind eye is troubled with spectra of light, and is more or less varicose and hard. Tab. II. fig. 8. Such a cataract is always attended with chronic headaches. During its formation, should the

cataract appear to be complicated with synchysis, the diagnosis is difficult. It is also uncertain when the dissolution of the vitreous humour is incomplete; for in that case, excepting a suspicious softness of the bulb, and a slight fluctuation of the iris upon brisk motions, nothing can be detected which could confirm our knowledge of the disease. If however the synchysis be fully formed, then the fluctuation of the iris forward and backward, is evident; the cataract shakes, the eye appears atrophic, is at the same time soft to the feel, the sclerotica around the cornea is bluish, as in young children, and the sense of light is doubtful. When the cataract is locally complicated with amaurosis, the diagnosis will be easy if the amaurosis be perfect; for then the pupil will be found unusually large, the iris immoveable, and the patient cannot distinguish night from day. But in slighter degrees of amaurosis, the diagnosis is often very difficult; the history of the origin of the disease, will in such a case afford the best explanation.

THE CAUSES OF CATARACT.—Among the most particular causes of Cataract is, first, advanced age; for at this time of life, the vessels and cartilages become ossified and closed, the organs of the body are ill and imperfectly nourished, and cataract is also very commonly met with. Long misuse of the eyes, unusual, sudden and strong irritation of light, for example, in new-born delicate children; the strong and long-continued effects of the rays of the sun upon the head and eyes, working over strong fires, the local effects of concentrated mineral acids and æthers, the too free use of spirits, wounds of the eye and of the lens, miasmatic and cachectic dyscrasiæ, &c. produce cataract more or less frequently. Inflammations of the capsule of the lens, or of the lens itself, may also frequently induce cataract. I am convinced with Walther, that the greater part of cataracts take their origin from an inflammation of the lens and its capsule. The inflammations of the transparent structures of the eyes almost always produce the exudation of lymph, by which they

lose their transparency; all inflammations of such parts do not indeed terminate in this manner, only, every inflammation which is not speedily resolved, induces opacity of the structure in question. *

Cataract is often hereditary or congenital, of which, among others, Wardrop and Adams in England have pointed out cases. Saunders enumerates very remarkable cases of this nature.

PROGNOSIS OF CATARACT.—A cure of Cataract by internal and external medicines, is in

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* It would appear as if the transparent parts of the eye, when they become opaque, were under the influence of the inanimate laws of chemistry; for the lens and the cornea, when they become opaque, assume almost constantly a greyish-white colour, which always indicates the coagulation of the albumen which exists in these structures. If, on the other hand, the vitreous humour, which, according to my chemical researches, contains no albumen, (although Nicolas, *Anales de Chemie*, tome LIII. S. 312, asserts having found albumen in it,) become opaque, the opacity almost never has the greyish-white colour which so strongly indicates the coagulation of albumen.

the present state of our knowledge, very problematical, or at least happens very seldom. The only remedy almost always is the operation; even this, under the most favourable circumstances, cannot uniformly be successful.

However, the result of the operation for Cataract will be most likely favourable; when the cataract is really a pure local disease; when the organization of the eye is such, that the mode of operating indicated can be performed without difficulty; when the patient allows the operation to be performed quietly, and causes no impediment to the cure after the operation; when the operator is possessed of a light and sure hand, quick sight, and perfect courage; when the instruments are simple and perfectly suitable; lastly, when even the domestic conditions of the patient are such, that nothing disadvantageous to the eye may be expected after the operation.

Short-sighted people see best after the operation, undertaken in the above circumstances (even without spectacles); far-sighted people,

on the other hand, require spectacles to distinguish clearly the most common objects when near, because, by the removal of the lens, they become still more far-sighted.

The result of the operation for cataract is, in all cases, more or less doubtful; when the cataract is complicated; when the eye and its appendages are not of a form suitable to the operation; when the cataract patient is dull, timid, and ill fed, and when the necessary qualities of the operator are wanting; when the domestic requisites of the patient, and the instruments are bad; when the cataract has formed under repeated and long-continued headaches, though they may not have returned for a long time; when the patient has a disposition to catarrhal, rheumatic and erysipelatous affections, or when he has a very sensible cutaneous system; when he has previously suffered much by convulsions or epileptic attacks, or when he is scrofulous, syphilitic, gouty, &c.; when the eye, during youth, was subject to frequent returns of severe ophthalmia, or when the patient has a cachectic

habit; when the person cannot determinately and distinctly declare the shades of light, unless the cause be readily discovered in the eye itself.

The result of the operation is also very doubtful; in all patients subject to hysterical, hypochondriacal, or violent mental affections; when the patient sees the instruments during the operation; when the cataract has originated from a wound; when the patient is in the years of puberty; when one eye had formerly suppurated, or when it had been operated upon by a dexterous person, unsuccessfully.

The result is clearly more or less doubtful; when the patient has a copper-coloured complexion, (Gutta Rosacea,) which has not arisen from the improper use of spirits, but appears as a symptom of an internal cachexia; when the patient is convalescent from any disease; when the cataract is adherent to the uvea in a considerable part of its circumference; when there is inflammation of the eyelids, or ectropium of

the lower eyelid;* when the remains of a pannus, aversion to light, &c. are present.

The operation must entirely fail when amaurosis, synchysis, atrophy, hydrops oculi, glaucoma, varicositas oculi, or a still existing ophthalmia, is combined with the cataract.

The CURE of CATARACT.—A cure of perfectly formed cataract by medicines, is hitherto deemed impossible. Commencing cataracts, however, are supposed to have been cured, both in former and late times, by Mercurials, Antimonials, Digitalis, Belladona and Pulsatilla. Of late, Graefe and Benedict have found the Pulsatilla in the form of extract, or of the leaves powdered, useful. In commencing cataract, formed by a lentitis still existing, the muddiness disappears, according to Benedict, by the use of an eye-water of Henbane, and some drops of Laudanum. The operation, however, remains always

* The operation must never be performed, till this or entropium, if present, be removed.

the only remedy for the tolerably certain removal of cataract, but the patient is not to be disquieted by a long previous declaration of the intended operation. If congestion of the head be present, let venesection be performed, or if constipation of the bowels, and the evils resulting therefrom, exist, they must be previously removed. Some days before the operation, recommend temperance to the patient, and let him take care to avoid catarrhal affections. Other preparations which were formerly employed, are unnecessary. *

The operation for Cataract is performed in

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* Let the care which was formerly taken before the operation, be now observed after it, so as to prevent the too great increase of inflammation, properly to be dreaded; with this view, the necessary degree of after-treatment must be regulated by the kind of operation performed, and the individual operated upon; an error might sometimes be of great use, of which William Rowley relates a case, where the patient was nearly famished by neglect; the eyes however remained free from pain, and the result of the operation was as perfect as Rowley had ever seen it.

different ways; for either the lens is merely depressed, or it is depressed and reclined at the same time, *(Depressio, Reclinatio,)* or it is removed from the eye entirely, *(Extractio,)* or lastly, it is cut up into little pieces by a needle, introduced through the cornea, *(Keratonyxis)*. Sometimes the one, sometimes the other of these three operations is indicated.

In every operation for cataract, the following general points are to be observed:

The patient must sit upon a chair without a back, and obliquely to the window, so that the light may fall only sideways on both eyes, and no reflection take place from the cornea, as it is troublesome to the operator; also, that nothing may prevent the assistant from approximating himself sufficiently along with the head of the patient, to the operator. The assistant standing behind the patient, takes hold of the patient's head under the chin with his right hand, when the left eye is to be operated upon, presses it to his breast, and approaches, along with the head, more or less as may be required, to

the operator, who sits before the patient, upon a chair somewhat higher. The assistant then lays the left hand flat on the left side of the patient's brow, so that the points of the index and middle finger may come to lie somewhat under the edge of the upper eyelid; and with the fore-finger, first lifts up the edge of the eyelid as much as possible, and immediately follows it with the middle finger, so as to hold the eyelid the more firmly; the points of the two fingers must, however, project over the edge of the eyelid towards the eyeball, so far, as not indeed to touch, far less to press upon the ball, but only that the eye, with the cornea as its highest point, may slightly graze on the point of the finger, provided the eyeball should escape at all upwards from the instrument, whilst it is penetrating it; it will be thus immediately turned back from this position, so troublesome to the operator. The operator sits before the patient, in such a way that the patient's head may be directly opposite to the operator's breast, so that he may observe suf-

ficiently, from above, every thing during the operation, and not be obliged to raise his arms considerably. When the left eye is to be operated upon, he pulls down sufficiently the lower eyelid with the fore-finger of his left hand, but the point of his finger must, like that of the assistant, project beyond the edge of the eyelid towards the eyeball; in like manner, he lays the middle finger upon the caruncular lachrymalis, and takes, in his right hand, the instrument required for the operation, as he would a writing quill, between the thumb, fore and middle fingers. The eyeball will be thus best fixed during the operation, without any instrument for that purpose. The cataract in the left eye must be operated upon with the right hand, and that in the right eye with the left hand. In perfectly formed cataracts, Beer and many others operate on both eyes at the same time. If the one eye be operated upon when the other still enjoys vision, it will be proper to bind up the seeing eye.

So much for the operation of Cataract in

general, and now of the different modes of operating in particular.

Of Depression and Reclination of the Cataract.—Both methods of operating have three stages, the two first of which are perfectly the same in depression and reclination, the third stage is different in each.

First Stage.—The sclerotica is to be pierced with a lancet-shaped cataract needle, Tab. V. fig. 3, at the external canthus, distant a line and a half at most from the edge of the cornea, and about a whole line below the horizontal diameter of the eyeball, in such a manner that one edge of the needle be directed upwards, the other downwards, and its point towards the centre of the eyeball.* The hand with which the ope-

* The sclerotica is to be perforated a line and a half from the edge of the cornea, to prevent wounding either the corpus ciliare or the retina; the needle is introduced with its one side directed upwards, the other downwards, so as to avoid wounding the ciliary vessels, which always run forwards in a horizontal direction; lastly, the sclerotica is to be pierced under the horizontal diameter of the bulb, because exactly in the diameter the largest vessels take their course, and because the needle must be employed as the lever.

rator lays hold of the cataract needle, must be supported on the cheek of the patient, by means of the little finger, so that, when the needle has penetrated the sclerotica with its broadest part, it may not continue to enter too quickly and too deeply into the eye.

Second Stage.—The needle will now be so turned on its axis, that its handle may be pressed back to the temple, and its point directed towards the inner canthus parallel to the uvea, with however the one side of the needle forwards, the other backwards, the one edge upwards, the other downwards; the operator now advances the needle slowly into the posterior chamber, between the lens and the uvea, till its extreme point be somewhat hid behind the internal pupillary edge of the iris, and the posterior side of the needle lie upon the anterior surface of the cataract.

Third Stage for Depression.—After the needle has been so applied on the uppermost part of the cataract, that its point is directed somewhat obliquely backwards, and the side which had formerly rested on the an-

terior surface of the cataract, is now directed towards the uppermost edge of the cataract, he presses it according to the rules of the lever, obliquely downwards and outwards, beneath the pupil, till it is no longer observable; then he raises the needle softly, to see whether the lens really continues depressed, and lastly, he again withdraws it from the eye in the same direction in which it was introduced.

Third Stage for Reclination.—In this mode of operating, the needle lying on the anterior surface of the cataract, is not to be removed from its direction in the second stage,* but its handle only is to be raised like a lever in a diagonal direction forwards, so that the diseased lens may come to lie by the pressure of the needle in the vitreous humour, between the upper and external straight muscles, in such a manner that its anterior surface becomes now its upper one, its posterior surface its under one, its upper edge its posterior one, and its lower edge its anterior one.

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* Yet it is well that the needle should be laid a little more on the upper half of the lens.

Sometimes the following accidents occur during Reclination, which we must take care to render innocent by particular artifices. The capsule of the lens often tears, which may render the pupil opaque, in such a case the capsule must be cut into little pieces in all directions, by the needle, and removed as much as possible from the pupil. If the lens fall into pieces during the operation, the larger portion must be reclined, and the smaller ones, according to Scarpa,* pushed into the anterior chamber, where they are absorbed more speedily than in the posterior chamber. If the surgeon has to do with a cataract partially adherent to the uvea, he must first endeavour to separate the adhering parts with the edge of the needle, as Werner recommended, before he reclines the lens. If a cataract is met with which always mounts again, without the operator unguardedly drawing it up with the needle, an ad-

* Others, however, fear that inflammation, as iritis, &c. may arise from this manœuvre. Himly is of this opinion, but Scarpa asserts the contrary.

hesion of the posterior capsule of the lens with the cup-like cavity of the hyaloid membrane, is probably the cause; in which case the operator must here, also, first separate the adhesion with the needle. Should, however, the remounting of the cataract be owing to the needle having pierced it, the operator must withdraw the needle, and perform the reclination anew; or when the cataract fixed upon the needle is at the bottom of the eye, the needle is not to be raised or withdrawn till it is turned twice round upon its axis. Without such causes as these, the cataract very seldom rises again after reclination, it more frequently does so after depression, and thus takes away the sight which had been gained immediately before. This rising again is best prevented by holding down the lens in its place, when properly reclined or depressed with the flat side of the needle, which is still resting upon it, and by not withdrawing the needle from the eyeball for a short time.

The treatment after depression and reclination is very simple. Without allowing the patient to

make any trials to see, (which very readily causes the remounting of the cataract,) and after having shut the eyelids by a small strip of English court plaster applied perpendicularly, a linen compress is to be bound upon the brow, so as to cover the eye, and the patient must be enjoined to remain some days in the most perfect quiet of body and mind. The bed-chamber is also to be moderately darkened; the patient may be allowed to sit or to lie; to make use of easily digested food, and must avoid every thing which might induce inflammation of the eye. After three or four days, he may exchange the bandage for a green shade, but must nevertheless, for a long time, avoid every thing which can produce an unpleasant sensation in the operated eye.

Should a swelling from effused blood under the conjunctiva of the eyeball, occur during the puncture of the sclerotica, it will be for the most part absorbed without the aid of art. Tinctura Opii, or Lap. Infernalis, removes fungi which may form around the puncture. Effusions of blood in the chambers of the eye, when inconsid-

erable, are absorbed by the use of spirituous eye-waters; when they are considerable, however, they must be discharged by an opening in the cornea. A symptomatic vomiting, arising from a wound of the ciliary nerves or retina, is calmed by Valerian, Musk, Castor, Opium, or when these cannot be retained, by a Chamomile glyster, with Laudanum, and such like.

If a more or less considerable Amblyopia arise, in consequence of a too powerful and deep depression of the cataract upon the retina, raising the lens again is in general the only mode of relief, which will be effected by powerful motions of the head. An inflammation following the operation, is to be treated in the manner to be considered under Pure Iritis.

According to Beer, depression and reclination are not to be performed when the cataract is very hard, because the lens would not afterwards become absorbed. The great hardness of a lens, however, is not always to be considered as an objection; for hard cataracts have been often reclined with a very happy result. These two methods of operating are particularly indi-

cated, when a considerable synechia anterior, a too flat cornea, or an arcus senilis is present; for in the latter case, the incision of the cornea made in extraction in the course of the arcus, would not heal, and in the former case, on account of the flatness of the cornea, the incision would probably be too small. In like manner, reclination and depression are to be preferred in cases combined with myosis, in very deep-lying eyes, in patients who have narrow opening eyelids, in those who are unruly and young, and in cases of partial adhesion of the uvea with the cataract.

Moreover, small cataracts, for example, the dry-hulled capsulo-lenticular cataract, and the pure lenticular secondary cataract, are best depressed; and on the other hand, hard lenticular or capsulo-lenticular cataracts, or capsular cataracts adhering only at particular points with the uvea, are best reclined.

END OF THE FIRST VOLUME.

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